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URETHRO-VAGINAL

AND

Vesico-Vaginal Fistules:

REMARKS UPON

THEIR PECULIARITIES AND COMPLICATIONS: THEIR CLASSIFICATION AND TREATMENT: MODIFICATIONS OF THE BUTTON SUTURE: REPORT OF CASES SUCCESSFULLY TREATED.

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URETHRO-VAGINAL

AND

VESICO-VAGINAL FISTULES.

SOMEWHAT more than a year ago, my first paper on Vesico Vaginal Fistule and its treatment, appeared in the Louisville Review. The views which I then endeavored to present of that disease, differ in no respect from those which had been, and are at present entertained by the profession at large; but in its treatment, I claimed to have made an important improvement, by what I termed the *Button Suture*.

Whether such a claim was based upon data sufficiently conclusive to entitle it to the credit of a place among the great modern improvements in surgery, I leave entirely to an enlightened and discriminating profession to decide.

The manner in which I was led to adopt the above mode of treatment is already before the public, and, consequently, need not be repeated here. My convictions as to its many advantages over all other methods were then, it is true, based upon a limited experience—seven successive and successful operations. Still, that experience was to me doubly conclusive, as it was acquired under many disadvantages. Hence it was that I spoke positively, some may think arrogantly, of the superiority of the improvement which I conceived to have been made.

In this place, I have only to reiterate what I formerly said in favor of this form of suture. Further experience, of not only myself, but of others, fully justifies me in the importance I then attached to it.

The only change which my mind has undergone is in re-

gard to the material of which the button should be made. In my former paper, it may be recollected that I gave the preference to silver, for the following reasons: "It is lighter, less likely to yield under pressure, admids of a higher polish, and allows the wires to be drawn through the small holes without dragging."

Admitting even now the above qualities of silver to be superior to those of lead, still, experience teaches me that they are not so essential as I formerly supposed. All these qualities, I consider, are more than counterbalanced by the softness and flexibility which lead possesses. On account of these two qualities possessed by lead, every operator by employing that metal, is enabled to make his own buttons, and, if necessary, while his patient is on the table. When the lead is rolled out to the proper thickness, no other preparation to work it is required than a pocket knife, a punch, a small hammer, and a smooth iron plate; or, what is still better than the latter, a very small anvil, for upon this the required curves can be better formed. Very different is it with silver, to prepare which, it is necessary to employ a regular smith, who may not understand exactly what is wanted, and, even if he does, there are many little modifications in shape required which he cannot give unless the surgeon be present to point them out. Hence trouble and delay are liable to be experienced in operating, leading, perhaps, occasionally to the application of a contrivance which does not answer the purpose for which it was intended. No operator is prepared to treat the worst forms of fistule without being able, I repeat, to make his own buttons. He must always know what kind of a surface his button is to stand upon before the latter can receive the proper shape, a fact which can never be ascertained with certainty until his sutures are adjusted. Hence, again, the importance of having at hand a meterial out of which he can make, in a few minutes, the necessary device to meet all the indications. To this fact alone I attribute a great deal of my success in the management, as will be presently seen, of almost every variety of case which a surgeon is liable to meet with.

To what extent then has the button suture been approved by the profession, presented, as it was, upon its intrinsic merits alone? This, I think, may be partly inferred from the results obtained by its employment in the hands of other practitioners. Some of these results have already been given to the public through the journals, both of this country and Great Britain; and others have been communicated to me in a way equally reliable. The names of the surgeons who have operated according to this method, are, in our own country, Dr. Gaston,* of Columbia, S. C.; Dr. T. Wood,† of Cincinnati; Dr. Kollock,‡ of Savannah; and Dr. Williams, of this city; and, in Great Britain, Mr. Isaac Baker Brown;§ and Dr. Wm. Spencer Wells,‖ the former of the St. Mary's and the latter of Samaritan Hospitals, London.

There are others, doubtless, who have employed this form of suture, but as yet their results have not come to my knowledge. I regret very much that the limits of this paper will not allow me to present the minute details of the cases reported by the above gentlemen. Suffice it to say that most of their operations were performed under unfavorable circumstances, and none, so far as I have been able to learn, excepting in one instance, required repetition. This was in the case of Dr. Williams; and judging from this gentleman's account of the difficulties which he had to contend with, the success attending even his second operation was remarkable, and not only proves the advantages of the method adopted, but reflects great credit upon Dr. Williams' skill as an operator. Several of the other cases had been previously operated upon, according to other methods.

Whether these results corroborate my former statement as to the superiority of the button suture over all other methods or not, they will, at least, show with how much certainty any one who chooses to perform the operation may look for like success.

Before referring now to the results of my own practice

*MS. Letter to the Author.
†Western Lancet.
‡MS. Letter to the Author.
§London Lancet.
‖Times and Gazette.

since the appearance of my former paper, I propose offering some remarks upon the peculiarities and complications of *Urethro-Vaginal* and *Vesico-Vaginal Fistules*, with a view to their classification and treatment by certain modifications of the button suture, now presented to the profession for the first time in a systematic form.

Urinary fistules, appertaining to the female, present great diversity of forms, as every one who is at all familiar with the subject must know. It is the rarest thing, indeed, to meet with two cases exactly alike. The urethra may, for example, be found simply cut in two, or slit at any point, or torn at its outer extremity. Again, the fistule may be situated in the trigonus vesicalis or the *bas-fond* of the bladder ; in either of which regions its size may vary from that of a fine probe, to that of a quarter of a dollar, or even something larger.

In the third place, it may be formed at the expense of a part or nearly the whole of the former of these regions, and the root of the urethra, or both together, or of the latter alone. Lastly, it may complicate the cervix uteri in various ways, as I shall presently point out more particularly. In all these varieties the vaginal canal suffers more or less contraction, and, as very often seen, may be divided into different compartments, or *cul de sacs*, by hard and unyielding bands.

A proper classification, comprising all the varieties of fistule, I consider of the greatest importance in a practical point of view. The inexperienced operator, without such an arrangement to guide him in the details of his treatment, will find his way to success beset with many difficulties, and will, consequently, often experience disappointments.

Velpeau,* in his classiffication, makes three divisions, as follows :

1st class embraces all those fistules "which cause a communication between the urethra and vagina."

2d class is made up of "those which are established at the expense of the trigonus vesicalis."

3d class comprises all those situated in the *bas-fond* of the bladder.

*Operative Surg., vol. iii, p. 530.

I have no objection to the classification of this illustrious author and operator, and shall adopt it so far as it goes.— But there are cases, according to my experience, which cannot be referred to any one of these divisions, and, from their importance, deserve a separate consideration.

Therefore, that every case presenting itself to the surgeon may be arranged under its appropriate head, I propose to extend the classification of Velpeau, by adding two other divisions, making in all five.

The 4th class I would have to embrace all those fistules formed at the expense of a part or the whole of the vesical trigone and the root of the urethra ; of the trigone and *basfond* of the bladder ; or, all three of these regions together.

In the 5th class, I would include all those complicating the cervix uteri, either with or without injury.

As to the extent of each fistule belonging to each of these several classes, it may be very small, or it may involve nearly the whole of its respective region or regions, as may be seen by reference to some of the illustrative cuts in a subsequent part of this paper.

In cases of double or triple fistules, the openings may belong to one class alone ; in any event they would be likely to be small, as is usually observed in those forms of the disease. I have myself seen two, but never three. Only one generally is referable to a class. As regards the frequency with which each class is met with, an examination of twenty-seven cases, enables me to give the following summary :

Of the twenty-seven cases, twenty were single, four double, and three triple, making an aggregate of thirty-seven fistulous openings. Thirty-two of these fistules were vesico-vaginal, and five urethro-vaginal. Three of the double cases were vesico-vaginal, and the other urethro-vesico-vaginal. Two of the triple, were urethro-vesico-vaginal and the other vesico-vaginal.*

*The inaccuracy of the above statement alluded to by the author in the second part of this paper as published in the Review, is in this reprint corrected. There is, also, included here another case belonging to fifth class, which has recently come under treatment.

The whole, then, may be arranged under the following heads :

Single Fistules,	20	cases.
Double "	4	"
Triple "	3	"
Class 1st,	5	fistules.
" 2d,	9	"
" 3d,	8	"
" 4th,	4	"
" 5th,	11	"

It would sppear, then, from the foregoing, that fistules complicating the cervix uteri, are the most frequent in their occurrence, amounting to about 30 per cent., or nearly one third of all. Those of the trigone and *bas-fond* of the bladder come next, and, that both these classes together comprise about 46 per cent. Next, are those of the urethra, which constitute about 13 per cent., or about one seventh. Lastly, it will be seen that fistules of the fourth class are the least frequent, amounting to only about 11 per cent., or about one ninth.

Fortunately, the fourth class is rare, for I regard fistules of the first and third varieties of this class, presently to be described, as the most unfavorable forms of the disease ever met with, especially if much of the urethra has been destroyed ; for in that event incontinence of urine is liable to follow, however successful an operation may be.

I might, in this connection, illustrate the peculiarities of each of these several classes with cases which have come under my own observation, but this I deem entirely unnecessary. After noticing, therefore, class first, I shall pass over the second and third with only a few remarks to a consideration of the fourth and fifth, which are infinitely the most difficult forms of the disease to understand, and the successful management of which must be viewed as one of the greatest triumphs of surgical art.

The classes to which I have just alluded as claiming our attention, present, as I shall presently show, several varieties, and to assist in a better understanding of them, and the

modifications of the button required in their treatment I have introduced drawings illustrative of each. Those intended for the former purpose were taken from a vagina with its posterior wall removed by a horizontal section. The observer is therefore supposed to be looking at the different fistulous openings from behind.

Class 1st. This class comprises all injuries of the urethra which establish a communication between it and the vaginal canal.

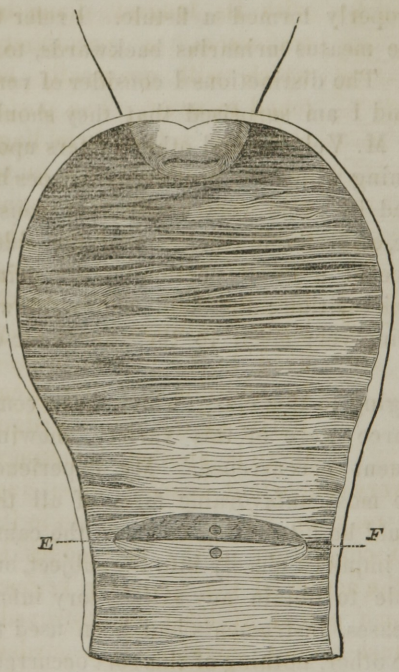
I say *injuries*, so as to include every variety ; for there is one form of communication, at least, according to my experience, which cannot be properly termed a fistule. I refer to a rent extending from the meatus urinarius backwards, to a greater or lesser extent. The distinctions I consider of very great practical utility, and I am surprised that they should have been overlooked by M. Velpeau and other writers upon the subject. The shortening which the urethra undergoes by such an injury, is attended by some very unpleasant consequences : as, for instance, an irritable condition of the sides of the rent, and an escape of a small portion of the urine into the vulva during micturition ; the fluid running down upon the thighs, and adding very much to the annoyance of the unfortunate subject.

Of the five cases belonging to this class, which have come under my observation, three were of this variety, showing that it is not of infrequent occcurrence. My experience teaches me that it is the most unfavorable form of all the urethral injuries. It would be interesting to know the cause of this accident. I have inquired closely into the subject, but as yet I have not been able to obtain any satisfactory information. In two of my cases, instruments had been used to effect delivery, but in the other, nothing of this sort occurred. Yet in all three cases, the nature and extent of the injury were almost identically the same, the rent being about three quarters of an inch in length. Could the awkward use of a catheter be attended by such a result? I have thought that this might be the true explanation.

Another variety of urethral injury is a mere opening or

slit in the canal, which may be at its middle or near either end ; and still another, where the canal is completely cut in two. This latter, I imagine, is very rare, and, when it does occur, will generally be found situated near the mouth of the canal, and is evidently produced by the parts being pinched between the child's head and the edge of the pubic bones during labor. Regarding it as a very peculiar and interesing form of the disease, I have introduced the annexed cut, Fig. 1, as an illustration of the only case I ever met with. E and F are the two ends of the urethra.

Fig. 1.



Classes 2d and 3d.— These two classes, one including fistules of the trigone, and the other those of the *bas-fond* of the bladder, according to my experience, comprise nearly one-half of all the fistules met with in practice. They constitute the most simple forms of the disease which we are ever called upon to treat. For this reason, and the want of space, I shall dismiss their further consideration, contenting myself with a reference to my former paper upon the subject, where all necessary information in regard to their nature and treatment may be found. The four cases there reported belong to one or the other of these classes.*

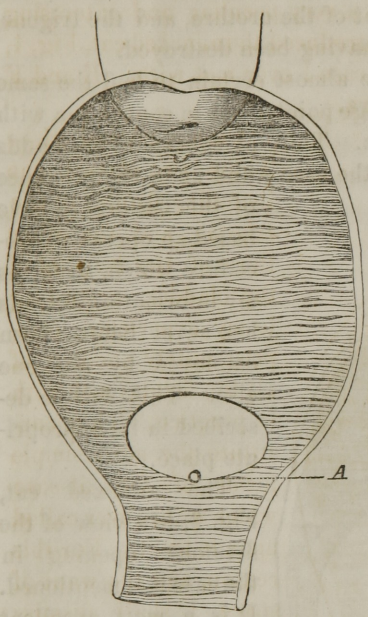
Class 4th. Fistules of this class, as already stated, are formed at the expense of a portion of the vesical trgione, and the root

*See Louisville Review, May, 1856.

of the urethra ; of the former of these regions and a part the *bas-fond* of the bladder ; or of all three of these regions together. The first variety here mentioned is of rare occnrrence. I have myself met with but three instances of it.

The annexed drawing, Fig. 2, is an illustration of this variety. The opening, it will be seen, involves only a small portion of the trigone, and, perhaps, not more than one-eighth of an inch of the urethra. It is oval in shape, with its longest diameter transverse, a peculiarity which will genereally be found to exist. The posterior edge, soft and yielding, can, in nearly if not quite all of such cases, be brought down so as to close the opening without disturbing the anterior edge, which latter is always immovably fixed to the pubic bones.— In addition to this peculiarity of the anterior edge, there is another, sometimes met with, which has a very important bearing upon any operative procedure that may be adopted. I allude to its inversion, in which case coaptation of the two edges is rendered impossible, and the action of the sphincter vesicæ, if any remains, must, to some extent at least, be destroyed. Cases presenting this feature cannot, therefore, be regarded otherwise than unfavorable. Of the second variety of this class, I have not seen a single instance. When it occurs, as most unquestionably it does sometimes, I would regard it almost as favorable as the varieties of the two preceding classes. Both borders of the opening would be likely to prove yielding and quite susceptible of mutual approximation.

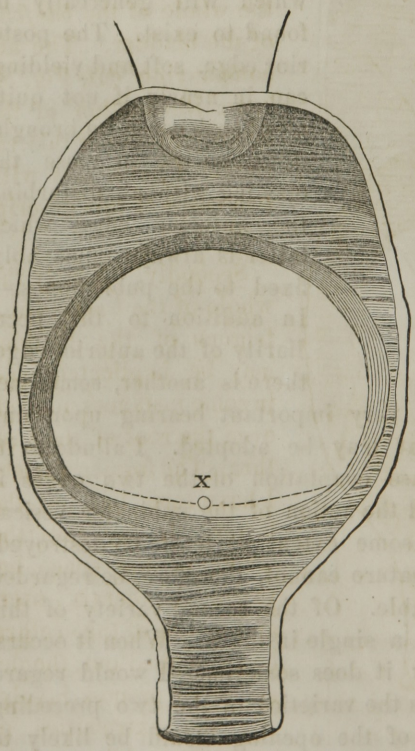
Fig. 2.



The third variety I have met with but once, and, considering the nature and extent of the injury, it must be looked upon as by far the most unfavorable form of fistule ever presented to the surgeon. Not but what it is just as readily closed as some of the other forms. The idea I wish to convey is, that the result of the operation will be incomplete, owing to so much of the root of the urethra, and the trigone, and *bas-fond* of the bladder having been destroyed.

In this variety, too, we are almost certain to find the same peculiarity of the anterior edge pointed out in connection with the first,—namely, inversion. This, of course, always adds to the unfavorableness of the case; and upon the existence of this feature I have based an operative procedure which, so far as my information extends has never before been employed by any one else. This will be described in its appropriate place.

Fig. 3.

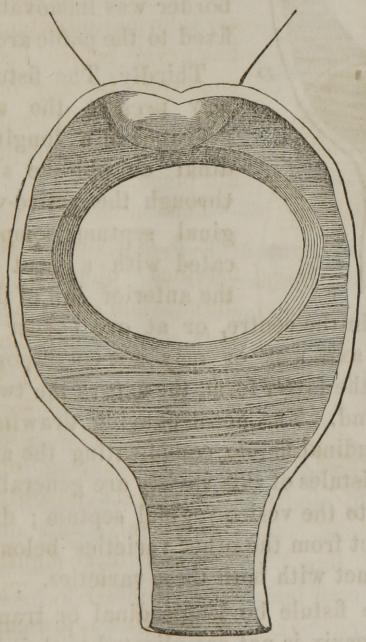


The annexed cut, Fig. 3, is a view of the fistulous opening in the case last mentioned. It is a most excellent type of this variety in its very worst form.—The opening is quite large, measuring one inch and seven-eighths transversely, and one inch and three-eighths longitudinally. The dotted line represents the inverted border, and X the beginning of the urethra.

Class 5th. This class embraces all fistules, of whatever shape or size, to which the cervex uteri, whether itself injured or not, bears close and important relations. I have stated that about 30 per cent. of all the cases met with in practice belong to this class. The varieties which it presents are several, and from their peculiarities and importance, claim our special attention. These I shall attempt to point out as precisely as possible, as I go along, for upon them is based some of my most valuable modifications in the plan of treatment by the button suture.

First, the fistulous opening may be found extending just across the tip of the anterior lip of the cervex uteri, which latter forms its posterior border. It may be barely large enough to admit the index finger, or it may involve nearly the whole of the *bas-fond* of the bladder. The accompanying cut, Fig. 4, is an illustration of the latter extreme of this variety. I have met with two cases of this description.

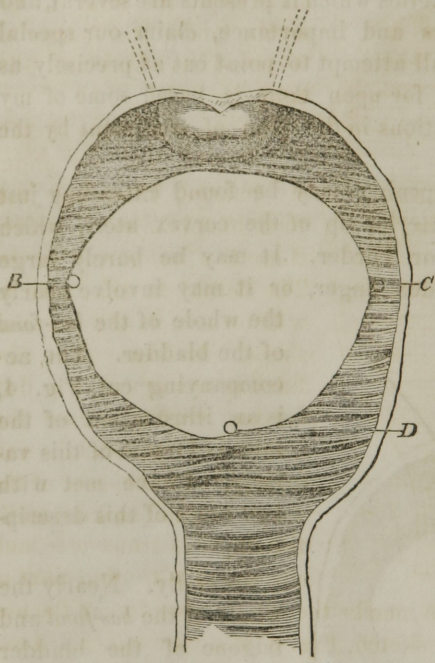
Fig. 4.



Secondly. Nearly the whole of the *bas-fond* and trigone of the bladder may be implicated, and in some instances, indeed, even the root of the urethra. The former variety I have seen, but not the latter. In my case, the whole of the space between the cervix uteri and mouth of the urethra had sloughed out, the destructive process involving the extremities of both ureters. The opening measured one inch and five-eighths

transversely, and one inch and three-eighths longitudinally. The accompanying figure 5, represents the size and shape of the fistule, and the points related to it. D, is the mouth of the urethra; B, the left ureter; and C, the right. The last, it will be seen, is represented as opening on the vaginal side of the septum. This condition really existed, and resulted from an eversion of the edge of the fistule at this point. In addition to the above, the anterior border was immovably fixed to the pubic arch.

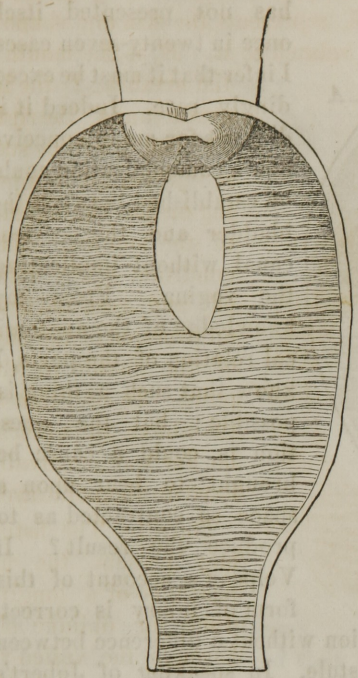
Fig. 5.



Thirdly. The fistule may present the appearance of a longitudinal or oblique slit through the vesico-vaginal septum, complicated with a rent in the anterior lip of the cervix. The rent may be in the centre, or at one corner of the lip, and the line of its axis may or may not correspond to that of the fistule. In the latter form, the axis of the two, I imagine, never correspond. The accompanying drawing, Fig. 6, represents a longitudinal fistule complicating the anterior lip at its centre. Fistules of this variety are generally formed without much loss to the vesico-vaginal septum; differing widely in this respect from the other varieties belonging to this class. I have met with both these varieties.

Fourthly. Whether the fistule be longitudinal or transverse, small or large, the cervix is not complicated with it in the form of a simple rent, but a part or the whole of that portion included within the vagina, or even more, may have

Fig. 6.



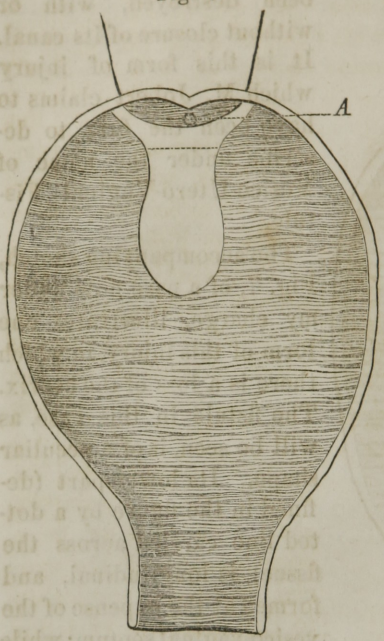
been destroyed, with or without closure of its canal. It is this form of injury which M. Jobert claims to have been the first to describe under the name of Vesico-Utero-Vaginal Fistule.

The accompanying sketch, Fig. 7, of a case now under my charge, illustrates one form of this injury, in which there is a loss of the cervix. The fistule in this case, as will be seen, is of a peculiar shape. Its lower part (defined in the figure by a dotted line carried across the fissue), is longitudinal, and formed at the expense of the vesico-vaginal septum; while the upper is transverse, and corresponds to that part of the cervix destroyed. A, marks the relative position of the uterine orifice. Another sketch, Fig. 8, of a case which I have just cured, shows the entire loss of the vaginal portion of the cervix and the vaginal attachment to its anterior aspect.— The cervical canal, so far as I have been able to ascertain, is completely closed. Not even a depression exists to indicate its whereabouts.

This complicated fistule, as will be seen, is nearly circular, and includes almost the whole of the *bas-fond*, and a part of the trigone of the bladder. The cases which these two last named drawings (Figs. 7 and 8,) illustrate, come under the head of vesico-utero-vaginal fistules, according to Jobert, and are the only ones I have ever met with.

As to the other form of cervical injury, describrd by the above surgeon under the head of *Vesico-Uterine Fistule*, I have

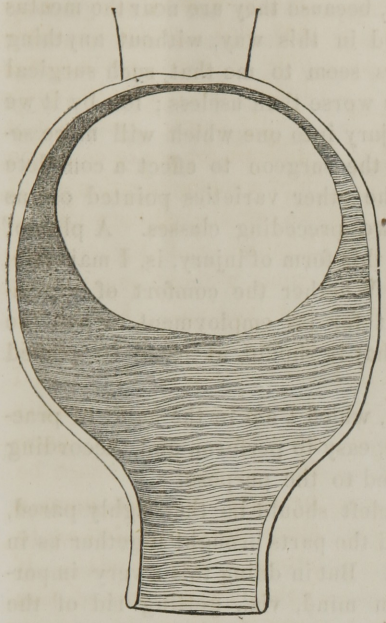
Fig. 7.



yet to see a case, and as it has not presented itself once in twenty-seven cases, I infer that it must be exceedingly rare. Indeed it is difficult for me to conceive how a communication could be established between the bladder and the cervical canal without implicating the vagina. From my knowledge of the anatomical relation of the parts, I know that such a thing is possible; but the question is, could a cause be brought to bear upon a space so contracted as to produce the result? If Velpeau's account of this form of injury is correct, then Jobert makes a distinction without a difference between it and vesico-utero-vaginal fistule. In speaking of Jobert's first case, he says: "The anterior wall of the neck of the uterus, and the corresponding portion of the bladder were entirirely destroyed."* Now I ask how could the anterior wall of the cervix be entirely destroyed without involving the vagina? Without discussing this point further, I am forced to the belief that even Jobert himself never met with a case which could be appropriately called vesico-uterine fistule,—that is, if Velpeau's interpretation of his views are correct. However, whether one or both of these forms of cervical injury are appropriately named or not, is of but little consequence in a practical point of view. They appear to me to be liable to cause confusion, without, in the least degree, aiding in a proper understanding of the subject. For this reason, if no other, I shall consider all the varieties of

*Op. cit. vol. iii, p. 872, Am. Appendix, by G. C. Blackman, M. D.

Fig. 8.



fistule belonging to the class now under consideration, under the head of Vesico-Vaginal, and the different injuries of the cervix uteri as mere complications, which do not deserve to be regarded in any other light.

Treatment.—I shall call attention first to the management of rents at the outer extremity of the urethra, and for reasons such as those given in a previous allusion to the second and third classes, shall then pass on to a consideration of the special treatment applicable to the different varieties of the fourth and fifth classes.

I have already mentioned that the variety of urethral injury above referred to has hitherto been almost, if not entirely neglected by writers upon the subject. Of course, therefore, no special plan of treatment, at least none sanctioned by experience, is to be found upon the records of the profession.—Velpeau, in speaking of a case which he had at La Charite, in which the fistule was situated near the extremity of the urethra, says that, "he confined himself to the extirpation of the urethral bridle which separated the fistule from the meatus urinarius."† By this procedure he produced the very same form of injury, the treatment of which I am now about to describe. As a preliminary step, this course of Valpeau's may, under some circumstances, be justifiable ; but does our obligation to the patient cease with this? It would really seem so from a further remark of this surgeon. For, says he,

†Op. cit. vol. iii, p. 530.

"this small operation was attended with entire success."—Now if fistules of this class, because they are near the meatus urinarius, are to be treated in this way, without anything further being done, it does seem to me that such surgical interference as the above is worse than useless; for by it we convert a simple form of injury into one which will more severely tax the patience of the surgeon to effect a complete cure than almost any of the other varieties pointed out as belonging to this or the two preceding classes. A plan of treatment then, adapted to this form of injury, is, I maintain, of the utmost importance. Whether the comfort of the patient is sufficient inducement for its employment or not, the credit of our art requires that it should, at least, be placed upon a sure basis.

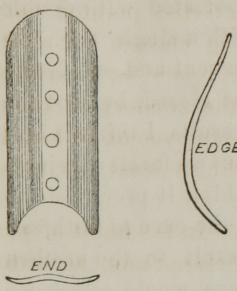
The following procedure, which I am in the habit of practising, will be found simple, easy to perform, and, according to my experience, well suited to the purpose.

First, the sides of the cleft should be thoroughly pared, and sutures introduced, and the parts brought together as in any other variety of fistule. But in doing this a very important point is to be borne in mind, viz., getting rid of the action of the urine as it passes through the newly formed channel. This must always be attended to if we expect to succeed. As a protection to the parts, therefore, a catheter would very naturally suggest itself, and I consider this the only means that could be devised. But this alone is not sufficient to insure a perfect result, however well the operation may be performed,—and why? Because the instrument, the very means employed to ward off one difficulty, becomes itself an impediment to union of the parts by the first intention. This impediment is caused by the weight of the instrument, and cannot well be prevented, no matter what form or variety be employed.

There being no support to the catheter at the meatus, its constant tendency is to tilt downwards between the two denuded edges of the cleft, however well they may have been brought together. Partial or complete failure will, therefore, be the inevitable result. Now, how is this support to be obtained?—

Certainly, not by attaching a contrivance to the body of the patient, or to the couch upon which she is lying; for the slightest movement of the former would derange the whole affair. The only way in which I have been able to attain the desired end is by a modification of the button which I employ in cases of vesico-vaginal fistules. The accompanying sketch, Fig. 9, is a representation of such a contrivance.—

Fig. 9.



The usual shape of the button is preserved, with the addition of the notch in the end and the curve indicated in the edge view. It is also a little narrower than the common button, being about half an inch in width.—The curve is made to correspond to the general direction of the urethra. When this contrivance is applied and secured in its place by compressing shot upon the several sutures, as is usually done, the end with the notch projects forwards, and in front of the meatus urinarius, and thus becomes a stationary point upon which the catheter may rest, without in the least interfering with the denuded edges of the cleft. The catheter should always be introduced before the button is secured in its place, and not removed, if it can possibly be avoided, until the cure is complete; nine or ten days generally sufficing. When it chokes up, as sometimes occurs, it can be easily opened by running a small wire through it. When the suture apparatus is removed the catheter should be cleansed, replaced, and worn for three or four days longer. The pressure may now be taken off from the tender cicatrix and the instrument held sufficiently steady by means of a loop attached to a belt, carried around the body of the patient. If this precaution be not observed, and the catheter be allowed to hang down, the rent is almost certain to be reproduced, either partially or completely. I have known the latter to happen two weeks after the cure was thought to be complete, in an instance where the catheter was worn after an operation for vesico-vaginal fistule.

The catheter which I have found to answer best in this operation, is the male elastic, of English manufacture. No. 5 is about the right size. I use it of full length, because it is more comfortable to the patient; and the danger of any urine running up on the outside of the denuded edges, is more effectually guarded against. I have several times performed this operation, and always with the happiest results.

In two of my cases, the rent was associated with double vesico-vaginal fistules; in the other with a single one. In the first two, I attempted closure of the rent and one fistule at the same operation; in each, the rent closed, but not the fistule. Judging, therefore, from these results, I think it best always to make separate operations of the two forms of injury. This will be my course hereafter, and I think it preferable to close the fistule first, for the reason that the cure of both can be completed sooner, and no danger result to the urethra from the pressure of the catheter, as there would otherwise be if the latter was operated upon first. The after-treatment of the two together cannot be made to harmonize, and here, I am satisfied, lies the cause of my failure to close the fistules in the two cases referred to. The catheter, when constantly worn, as it should be for the rent, is very liable to be closed up, and when it is not promptly attended to, mischief to the fistule is certain to follow from an accumulation of urine in the bladder.

Fourth Class. In calling attention to the management of this class, I shall confine myself to the first and third varieties. The second variety is simple, and requires no modification in the ordinary plan of treatment.

One form of treatment applicable to the varieties referred to, is also simple, and does not require a protracted notice. The only peculiarity about the operation is dependent upon the fact that the anterior border of the fistule, is immovably fixed to the pubic bones, and when the edges are pared and sutures introduced, it remains *in situ*, while the posterior is hauled down, causing sometimes a slight depression of the uterus. When the edges are thus approximated by the adjustment of the sutures, the surface upon which the button is

to stand may be found either convex, from previous thickning of the urethra, or concave, from close attachment of the anterior border to the pubic bones. In the former case, a button bent upon its concavity will be required. Fig. 10 is a front, edge and end view of such a one as I have recently employed. When the surface is concave, the button will require to be bent upon its convexity, as represented in Fig. 11.

Fig. 10.

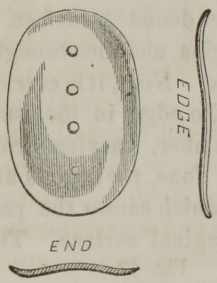
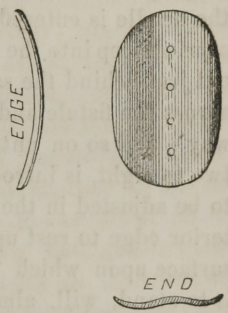


Fig. 11.



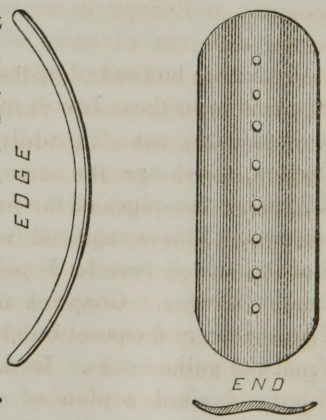
There is, however, another form of treatment sometimes applicable to these two varieties, which is a little more difficult to carry out. In addition to the modifications of the button, which are the same, there is a difference in the plan of paring the edges of the fistule and the introduction of the sutures. This is required from an inversion of the anterior border, which feature I pointed out in the description of these varieties. Coaption of the two edges is here almost impossible, and cannot be effected without detaching the parts from the pubic bones. Rather, therfore, than take this risk, I have devised a plan of operating, to allow the inverted border to remain undisturbed. The procedure is as follows :

The posterior edge, instead of being bevelled, is in this instance to be pared square, or, in other words, perpendicularly, around to each commissure of the fistule. At these two points, the process of denudation, instead of being carried along the anterior edge, is continued parallel to it across the anterior wall of the vagina, and the raw surface made of sufficient width to match the posterior edge. Fig. 3 illustrates a fis-

tule of this character, with its edges pared. The circular lines, as will be seen by reference to the cut, show the situation and extent of the denudation upon the anterior vaginal wall.

The paring being completed, sutures (always equal numbers upon the two sides of the urethra) are next introduced. The peculiarity connected with this step, is that the vaginal mucous membrane is pierced three times by the needle in lodging each suture in its respective place. . For example, the needle is entered just in front of the denuded surface, is carried deep into the substance of the vagina, and then brought out just behind the same denuded surface. Next, it is carried across the fistule and through the opposite edge in the usual way ; and so on until the requisite number, varying from two to eight, is introduced. This being done, the sutures are to be adjusted in the ordinary manner, which causes the posterior edge to rest upon the anterior vaginal surface. The surface upon which the button is to stand, will, almost if not quite always, be found concave. Therefore, such a shaped button as Fig. 11 illustrates, will be required. The length and extent of the curve will always depend upon the length of the axis of the fistule. Fig. 12 is a view of such a button as was employed in the case represented by Fig. 3. One longer and having a greater curve than this will, I imagine, be rarely if ever called for. The object of the curve in all cases is to bring the two ends of the button within the pubic arch, the only way in which perfect adjustment can be had.

Fig. 12.



Fifth Class. After the account already given of this class of cases, it would be a waste of time to dwell on the difficulties and dangers which have heretofore been regarded as inseparable from any operative procedures intended for their

management. It may not be deemed out of place, however, to refer briefly to the course pursued by some surgeons of good reputation.

Vidal (de Cassis), has declared that fistules, even of the *bas-fond* of the bladder, due to a loss of substance, are entirely beyond the reach of art, so far as their closure is concerned. He would, of course, in this, as he did in that class of cases, advise obliteration of the vagina. Now that this procedure is ever justifiable, under any circumstances, my observation and experience has yet to prove. My present conviction is, that it is rarely if ever called for. Jobert (de Lamballe), however, be it said to the honor of French surgery, has done something more. He has not only devised a plan of treatment to reach this extreme and much-to-be-lamented class of sufferers, but has actually demonstrated its utility. To this surgeon, so distinguished for his skilful exploits in the field of operative surgery, is therefore due the credit of having been the first, indeed, I may say the only one, either in this country or Europe, to accomplish anything in the treatment of the different varieties of fistule complicating the cervix uteri. His method of operating is denominated *Cystoplasty*. To this procedure, I wish now to invite attention.

The operation of cystoplasty, though ingenious, and doubtless one of the greatest triumphs of modern surgery, appears to me to be environed by some objections. These I propose to examine here, with the view of ascertaining whether the operation can ever be brought into general use or not. In attempting this, however, I do not wish it to be understood that it is my purpose to detract from the claims of its distinguished author. Far be this from me. I am, in common with the whole profession, willing to accord to him the praise he so justly deserves for his wonderful success in this hitherto unexplored branch of obstetrical surgery.

What, then, is cystoplasty? What its advantages? What the amount of skill required to perform it? What the dangers attending it? In short, what are the inducements it holds out for general adoption?

Cystoplasty, in the most extended acceptation of the term,

means, I believe, the process of closing any kind of fistulous opening into the bladder. Jobert, however, restricts it to the procedure, adopted by himself, for closing openings in the vesico-vaginal septum, occasioned by extensive loss of substance. The steps of the procedure, according to my understanding of it, are as follows :

The cervix uteri is first seized with a pair of Museux's forceps and drawn down to the vulva. Next, the vagina is severed from its anterior attachment, which brings to view the point at which the posterior wall of the bladder is connected to the cervix by areola tissue. From this point back to the reflection of the peritoneum, a clean dissection of the vesical wall from the cervix is made. This being done, the borders of the fistule are freshened, the sutures introduced, and the approximation then effected. The object of the above dissection, it will be understood, is simply to procure the requisite amount of relaxation of the posterior wall of the bladder to admit of its being drawn down so as to close the fistulous opening. In this way displacement of the uterus is said to be avoided, and consequently dragging upon the sutures prevented.

Admitting, now, the attainment of all that is here proposed, and the result to be generally satisfactory, I ask, are not objections to the procedure apparent to every one who is at all familiar with the anatomical relations of the parts? The objections which I find are :

1st. The operation has neither simplicity nor certainty to recommend it.

2d. It is unavoidably tedious and painful.

3d. A greater amount of skill is required for the necessary dissections, than falls to the lot of many who may be called upon to perform the operation.

4th. The peritoneum is liable to be injured, against which risk no amount of anatomical knowledge, skill, or dexterity in the use of instruments is a sure guarantee.

The last mentioned, I regard as the greatest objection to this mode of operating. That Jobert himself has lost patients from the inevitable result, peritonitis, there can be no doubt. Only a few months ago I saw in a letter from a Paris corres

pondent of one of our medical journals, that this surgeon had a short time before lost a patient from this cause after one of his operations.

That a procedure, therefore, if not more successful, at least less liable to the above objections, is a desideratum, all must admit.

My experience in the management of the unfortunate class of cases of which we are now speaking, is comparatively limited. Still, sufficient, I trust, has been acquired to justify me in presenting my views here in a matured form.

The procedure which I have adopted, and propose here to give to the profession, will, I think, be found simple, easy to perform, and last, though not least, of all other coasiderations, almost unattended with danger. I say it is almost unattended with danger, for I have never seen, excepting in one or two instances, the slightest fever result from my operations, which now amount to nine.

Somewhat more than two years ago, I met with my first case of vesico-vaginal fistule complicated with a rent in the anterior lip of the cervix uteri. Then it was that I first demonstrated the practicability and safety of paring the cervix, and lodging sutures in its substance. An account of this case is to be found in the Southern Medical and Surgical Journal for August, 1855.

The importance of this method of treatment, and its general application, I did not then fully appreciate. Indeed, I was not aware at the time, that the same thing had not been practised by other operators, and thought but little of it. A further examination, however, satisfiied me that the plan was new ; or at least I could find no mention of it in a dilligent search through all the writings appertaining to the subject that I could lay my hands upon. Since that time, Dr. J. M. Sims,* of the Women's Hospital, New York, has adopeted the method, and if I am correctly informed, others have done the same.

The value of this discovery I now consider incalculable, and, in connection with another principle of my procedure,

*MS. Letter to the author, Nov., 1855.

to which I shall now call attention, enables me to cure cases with ease to myself and safety to patients, which have been heretofore abandoned entirely, or reached only by the dangerous procedure of Jobert. The principle to which I have just alluded, is the depression of the uterus for the purpose of closing the fistulous opening however large it may be. This point, although suggested by Velpeau, has never before, that I am aware of, become established as a practice by any one, and, as would appear from the language of that distinguished surgeon, he himself attached very little importance to it. In speaking of it, he says : "Another process which might be borrowed from anaplasty, when the fistule is very high up, would consist in actively cauterizing its vaginal region, then in hooking the neck of the uterus with an *erigne* or a noose of thread, in order to pull it down, and cause it to slide, as a drawer, below the vesical opening. But I repeat, all these suggestions want a foundation to rest upon ; none of them can yet adduce any success in their favor."†

The idea contained in the above was certainly a good one, but unfortunately it was never carried out in practice, nor could it have been done successfully without a knowledge of paring and suturizing the cervix.

The principle then upon which my procedure is based, is the subserviency of the uterus for closing the fistulous opening, and the lodgment of sutures in the cervix uteri, as in any part of the vesico-vaginal septum.

If there is no danger in paring the cervix and carrying sutures through it, the only other objections which could be urged against the procedure are displacement of the uterus, and a supposed dragging upon the sutures. As to the displacement, I myself attach no importance to it. I have never yet seen any ill consequences from it, save a little soreness across the lower part of the abdomen for a few days after the operation. In a very short time, the organ, owing to the yielding nature of the vagina, ascends almost, if not entirely, to its normal position in the pelvis. In one case upon which

†Op. cit. vol. i, 627.

I operated, the uterus was dragged down nearly an inch and a half, and secured to the inferior border of the fistule. The operation was entirely successful, and now, if one should make an examination of the parts without a knowledge of what had been done, he would scarcely be able to detect any alteration save a less degree of prominence of the cervix. This patient now enjoys perfect health, menstruates regularly, and is generally able to retain her urine all night.

As to the dragging upon the sutures, I fear nothing from this. I have never had a suture to cut out, and I am satisfied that, owing to the dense and firm structure of the cervix, this accident is much less apt to occur here than in the vesico-vaginal septum.

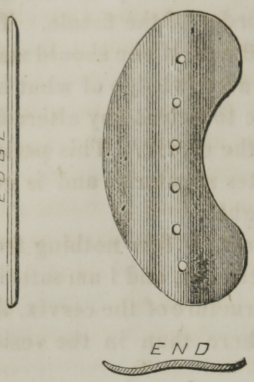
I beg leave now to call attention to the modifications of my plan of treatment applicable to the several varieties constituting this class.

Fig. 4 is an illustration of the first variety. A reference to the cut again, will prepare the mind for a proper understanding of the adjustment of the suture apprratus. The edges of the fistule, it will be seen, although I did not before call attention to the fact, are represented as being pared; and in paring the cervix, I may observe here, that it is proper always to leave the denuded surface perpendicular, not oblique or bevelled, as is required generally for the vesico-vaginal septum. This is necessary to insure a good coaptation with the opposite edge.

The paring being completed, the next step consists in the introduction of the sutures, of which two are usually required for the cervix; and these two are of the greatest importance. The number of the others will, of course, depend upon the size of the fistule; but it is essential that those of the cervix should be attended to first, then the others upon either side. In this variety of fistule, both edges being movable, meet, when approximated, upon half-way ground.

Fig. 13 illustrates the shape of the button required in this variety, and is a representation of the one used in the case referred to. The notch in the upper edge is for the accommodation of the anterior lip of the cervix. There is nothing

Fig. 13.



peculiar in the method of applying the button and securing it in its place, nor in the after-treatment.

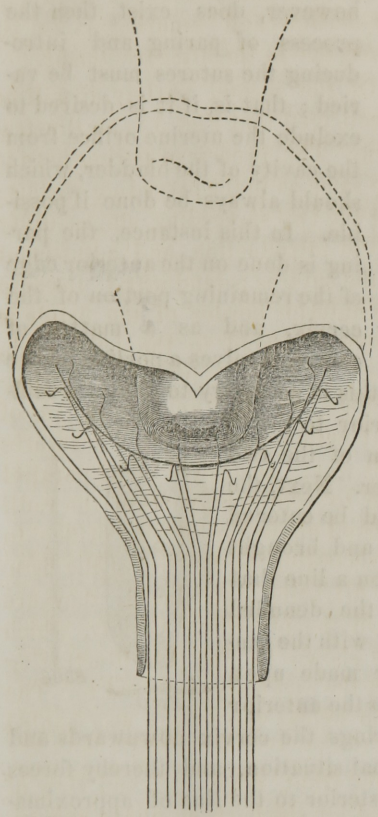
Of the second variety, it will be recollected that Fig. 5 is an illustration. The process of paring here is the same as in the preceding variety; but the two succeeding stages differ in the introduction and adjustment of the sutures ;—and why ? Because the anterior border of the fistule is immovably fixed to the pubic arch, which prevents their mutual approximation. In this state of things, we may avail ourselves of that principle of independent action ascribed to the sutures required to be entered in this way. Instead of being parallel to each other, they are made to represent parts of the radii of a circle, whose centre is fixed above the uterine orifice, to a greater or less distance, according to the size of the fistulous opening. The sutures all being introduced, they are next adjusted, as directed in the preceding variety, which brings the parts together as shown in Fig. 14, illustrating this stage of the operation in the case above referred to. The dotted lines above show the extent the uterus was hauled down to close the opening.

The next cut, Fig. 15, is the front, edge, and end view of such a button as was required for the parts as above arranged, and is such as will generally be found indicated in this variety.

Of the third variety, a reference to Fig. 6 will indicate what is to be done. Here we have a simple longitudinal slit complicated with a rent in the centre of the anterior lip of the cervix uteri. The steps are, first, to pare the edges of the fistule in the ordinary way, and then the two sides of the cleft ; next introduce a sufficient number of sutures to close, first, the fistule, and then the cervix ; only one or two being generally required for the latter. The sutures for the cervix, in this instance, are introduced transversely, instead

of antero-posteriorly as in the preceding varieties. The whole being adjusted, the sides of both fistule and cleft are thus brought in apposition.

Fig. 14.



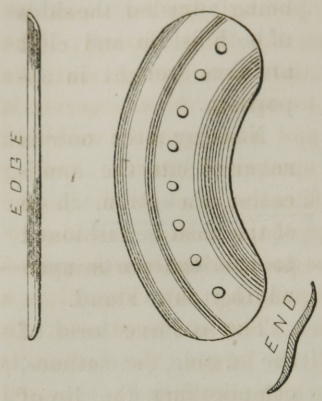
Nothing more now is required but the application of a button, whose shape must be fashioned to suit the parts upon which it is to stand.

The oblique form of the fistule, sometimes, complicating the lip of the cervix at one of its corners, had better be operated upon alone; fterwards the rent.— Such a button as represented at Fig. I6, will be found suited for fistules of this description. The notch at the corner is for the accommodation of the side of the cervix.

Fourth variety. Fig. 7 is a view of this variety. Here the longitudinal or lower portion of the fistule should be closed first; the upper portion, at a subsequent operation. A common-shaped button will generally be found to answer, no modificatfon of any importance being necessary.

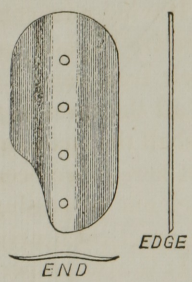
In closing the upper portion of the fistule, however, a little more trouble will be experienced. The loss of a portion of the cervix, and the anteversion which scmetimes attends it, are both difficulties to be encountered. If the latter condition does not exist, the same treatment applicable to the first variety will answer, the only difference being that the button

Fig. 15.



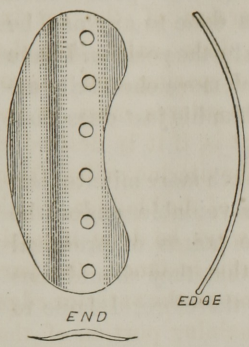
will not require to be so long. If anteversion of the cervix, however, does exist, then the process of paring and introducing the sutures must be varied; that is, if it is desired to exclude the uterine orifice from the cavity of the bladder, which should always be done if possible. In this instance, the paring is done on the anterior edge of the remaining portion of the cervix, and as a matter of course, involves a portion of the vesical mucous membrane; this is necessary to obtain a sufficiently broad surface anterior to the os uteri to insure agglutination of the two edges when brought together. Next, the sutures for the cervix should be entered far in upon its vesical side, and brought out from behind forwards, on a line that will allow of coaptation of the denuded surfaces without interfering with the uterine orifice. Traction now made upon these sutures, while it carries the anterior edge up, at the same time brings the cervix downwards and backwards towards its normal situation, and thereby forces the os uteri to a position posterior to the line of approximation. In this way the catamenia will be allowed to take the natural outlet instead of through the bladder, as would necessarily be the case were the fistule closed with the cervix *in situ*. A button of the shape last referred to, will be found to answer here also.

Fig. 16.



The remaining form of fiistule belonging to this variety is seen at Fig. 8. Here, although the limits of the cervix are not well defined, still, the remnant of it forms the posterior border of the fistule, and must be pared along with the other parts of the fiistulous border. This and the introduction of

Fig; 17.



the sutures are done very much in the same way pointed out for cases belonging to the first variety. The principal difference being that the stump, so to speak, of the cervix is broader, and consequently will hold a greater number of sutures. Owing to this difference, the notch in the upper edge of the button will also require to be proportionately larger.—The accompanying cut, Fig. 17, is a view of such a one as I have used. In addition to the notch being a little larger, the button is slightly bent upon its concavity, which peculiarity is required for easy adjustment. The edge view indicates the extent of the latter.

Having now completed, for the present, my remarks upon *Urethro-Vaginal and Vesico-Vaginal Fistules*, together with their treatment, I propose, in the next place, a brief analysis of all the cases in which I have employed the button suture. I shall then pass on to the narration of those cases which have not heretofore been recorded, at the same time accompanying each one possessing points of interest with such remarks as its practical bearing may require or circumstances suggest.

It is also proper for me to mention in this place the fact, that the foregoing remarks are merely a continuation of the views set forth in my former paper, and as such, the numbering of the cases here appended will thus appear.

My experience, although extending over a period of little more than two years, presents a greater variety of cases, I think I can safely say, than has ever before been offered to the profession by any one operator either in this country or Europe. When I say variety of cases, I refer to their different forms and complications as met with in practice, including, of course, their successful management. In making this assertion, I do not wish to be understood as boasting of my experience or success, nor do I believe any one who has examined into the subject will do me the injustice to think so.

I make the statement as a fact, based upon the professional records of the past. If by it injustice is done to any one, he has only to establish his superior claims to the position I have assumed, and in that event no one would more cheerfully acknowledge the error and accord to him his just dues than myself.

The details of some of my cases are much more minute than I could have desired, but it was unavoidable under the circumstances. Their interest, and the points of practical utility they illustrate, demand, I think, that they should thus be put upon record ; on these grounds, therefore, I hope to escape the imputation of prolixity.

The following is a summary of twenty-one cases, being all in which I have employed the *button suture:*

Single Fistules,	- - - - -	14	cases.
Double "	- - - - -	4	"
Triple "	- - - - -	3	"
Class 1st,	- - - - - - -	5	fistules.
" 2d,	- - - - - - -	8	"
" 3d,	- - - - - - -	6	"
" 4th,	- - - - - - -	4	"
" 5th,	- - - - - - -	8	"

Four of the above cases, embracing seven fistules, are reported in my first paper.* Five of these fistules belonged to the second class, and two to the third.

Two more of these cases, one single and the other triple, are yet under treatment, and do not appear among the appended reports. In the former of these, the fistule belongs to the first class, and is associated with laceration of the perineum and recto-vaginal septum. It has been twice operated upon with only partial success. The failures were occasioned by a contracted and hardened condition of the surrounding parts. In the latter, the fistules (a rent and two fistules) originally belonged to the first, third, and fourth classes. Those of the first and fourth I have succeeded in permanently closing. The other was once closed, and remained so for about a week ; ulcerative inflammation then caused a repro-

*See Louisville Review, May, 1856.

duction of it. Once since, I have operated, but failed. In all, I have had four failures. This case is remarkable, in being the one which led me to the discovery of the button suture; in being the one in which this suture (my twelfth application of it) first failed; and it is also remarkable in having been once permanently cured, and then followed by a relapse. The causes of failure may thus be briefly enumerated: bad health of the patient, almost complete closure of the vaginal canal from old cicatrices, and its proneness to take on ulcerative inflammation whenever disturbed, either by incision, dilatation, or denudation of the edges of the fistulous openings, &c. Having succeeded in closing two of the openings permanently, and the other once, temporarily, I feel encouraged to believe that I will yet obtain a satisfactory result.

The other fifteen cases, twelve single, one double, and two triple, embracing twenty fistules, I will now proceed to relate.

Case V. *Vesico-vaginal Fistule complicated with Rent of the Anterior Lip of the Cervix Uteri, of nearly Five Year's Standing. Cure by the Button Suture.*

Mrs. H., of Troup County, Ga., æt. 34, of medium stature, and well formed, consulted me, on the 17th of April, 1856, in regard to her situation. She states that she has had three children, two now living; the other, her last, was still-born. The birth of the latter occurred in November, 1851, at which time she became the subject of her present difficulty. Labor, in this instance, after continuing two or three days, was terminated by a resort to instruments,—craniotomy being performed. During the greater part of the labor she passed little or no urine. Says her suffering, on this account, was extreme. Just before calling in the physician who performed the above operation, she was relieved by the sudden discharge of a large quantity of water.—All was now thought to be right. A few days after delivery, puerperal fever was developed, which lasted three or four weeks. At the end of this period, first called the physician's attention to the fact of the urine passing off constantly without occasioning any desire. Fistule of the bladder was now suspected. No examination, however, was made, or anything done for five or six weeks. Confinement now in the recumbent posture, with catheter worn constantly in the bladder, use of caustic, &c., constituted the course of treatment, but all to no purpose, however, as the result shows. Has never menstrurated since she was injured. General health appears pretty good.

Examination.—Fistule of the fifth class, third variety, and complica-

ted the anterior lip of the cervix, at the left angle of the orifice. (See description on former page.)

Operation.—In the management of this particular form of injury, I heretofore stated that it is always best to make two operations. Such was the plan adopted in the present instance.

April 30th, everything being in readiness, the edges of the fistule, including the lower end of the rent, were thoroughly pared, and the sutures introduced. Of the latter, four were required. The upper one was made to take hold in the cervix on one side, and in the vesico-vaginal septum on the other, while the remaining three were all lodged in the septum, as in cases not thus complicated. Being next adjusted, the denuded parts was brought in perfect apposition. (Fig. 16 is intended to illustrate such a button as was required.)

For a few days after the operation, patient had slight fever and some little soreness across the lower part of the abdomen ; otherwise got along well.

Ninth day. Removed suture apparatus, and found union of the parts perfect throughout. Catheter was worn a few days longer, and the patient then allowed to get up. Now found that she had entire control over her urine. Thus it continued for three weeks. Patient, at the end of this period, concluded she was well enough to visit a relative residing about fifteen miles in the country, and undertook the trip in a carriage. After going about two-thirds of the distance, she discovered the urine to be escaping, as it had formerly done, though in much smaller quantities. This dribbling continued until her return a few days afterwards. Upon being apprised of what had happened, I suspected at once the giving way of the newly-formed cicatrix. An examination showed such to be the case. Only the upper end of it, however, had suffered, thus causing a very small opening into the bladder to be formed. To this I attached but little importance, knowing that I should be able to reclose it without difficulty in connection with the closure of the rent next to be operated upon.

June 3d. Performed the latter operation. The sides of the cleft and the edges of the small fistule were all pared together. Three sutures were required. The lower one was introduced in the same place, and in the same manner, as the upper one in my fisrt operation. The other two were both lodged in the substance of the cervix. Their adjustment now, and the application of a button, made to fit the inequalities of the parts, completed the operation.

After-treatment the same as usual.

Ninth day. Removed suture apparatus, and found union of the parts complete, so far as could be seen. Patient wore a catheter for four or five days longer, and then got up. Again found that she had entire control over her urine. In a few weeks she returned home entirely restored. Her general health now improved rapidly, and, in Novem-

ber following, menstruation came on for the first time since her delivery. Now it was that dribbling of urine again took place. Soon afterwards patient returned to consult me in regard to it. Stated that just before the menstrual discharge took place, she suffered severe uterine pains, and, following them, there was bloody urine and leakage of the bladder. Upon examination, no change, which the parts had undergone to allow the dribbling of the urine, could at first be discovered. When, however, the bladder was filled with water, the point at which the escape into the vagina took place was at once revealed. The water, instead of coming from the fistulous opening in the vesico-vaginal septum, was found to issue directly from the uterine orifice. A few moments' reflection convinced me as to the course the water had taken to reach this point, as well as the cause of it. After my last operation there remained at the bottom of the cleft a minute sinus, which, when the menstrual flow took place, allowed a portion of that fluid to pass down to the upper end of the cicatrix formed by the closure of the fistulous opening, and here being arrested, and pressed onwards by an accumulation above, the parts had to yield, and being weaker in the direction of the bladder, the fluid very naturally took that course; hence the severe uterine pains, bloody urine, and subsequent leakage. All doubts now, as to the correctness of the above diagnosis, were removed by passing a delicate probe, slightly curved, along the track referred to in the bladder.

There remained now, I conceived, but one alternative, which was to reproduce the original cleft, by a section of the parts down to the vesical opening, then to thoroughly freshen that part of the former which had been untouched, and the sides of the latter, preparatory to the introduction of the sutures. This was done a few days afterwards, the sutures introduced, and a button applied, just as had been done in the previous operation. The result was entirely satisfactory. My patient was again discharged cured, and continues so at the time of this writing, now nearly a year since. Menstruation has been regular ever since the operation. General health perfect, &c.

Remarks.—This case I consider very interesting as illustrating, in a very striking manner, some of the difficulties we are liable sometimes to encounter in practice. Although a part of the original fistule was twice reproduced, yet, so far as it was concerned, I consider all of my operations as eminently successful under the circumstances. After the result of my first operation was shown, it was some three weeks before leakage of the bladder returned. This, I am satisfied, would not have taken place had my patient not attempted the journey alluded to, until the rent in the cervix could have beeen closed. As to the second reproduction of the fistule, the cause is to be ascribed solely to the partail failure attending the operation for closure of the rent in the cervix uteri.

The case is also interesting as affording an instance of the artificial production of *vesico-uterine fistule*, as pointed out by M. Jobert. The condition of the parts, after the second reproduction of the fistule, presented as near an approximation to the above form of injury as I have ever seen.

Case VI. *Vesico-Vaginal Fistule complicating the Anterior Lip of the Cervix Uteri, of Fourteen Years' Standing; partially closed by the Clamp Suture; Cure completed by the Button Suture.*

Mrs. H., formerly of Auburn, but now of this city, consulted me in the early part of May, 1856, in regard to her condition; æt. 46; below medium stature; stout and heavily built; general health apparently good, &c. States that in giving birth to her ninth child, June, 1842, she sustained an injury of the bladder. Since then has never been able to retain her urine. Labor lasted about thirty-six hours. The physicians in attendance, discovering that the child was dead and of large size, thought it advisable to effect speedy delivery, which they did with instruments. Says that she passed no urine during labor.—Five or six days afterwards first noticed its dribbling.

Patient states that nothing was proposed for her relief until 1849, when she was advised to consult Dr. J. M. Sims, then of this city. Says that Dr. S. performed two operations upon her, from which she derived considerable benefit; the urine, after this, not dribbling off so free as it had done. Now, her general health improved, and menstruation was established. The menstrual fluid, however, instead of coming from the vagina was now discovered to be commingled, to some extent, with the urine, and, as long as the flow lasted (usually two or three days), it was attended with severe uterine pains.

Examination.—Fistule of fifth class, first variety; of small size, circular in shape, and rather to the left side. Its lower edge was unusually thin. The vaginal canal was shortened about one-third, and appeared to be a mere *cul-de-sac*. No cervix or uterine orifice was to be seen. A hard and unyielding structure, in the situation of the former, was the only remaining trace of it, and the fistule was just at the lower edge of this. In carrying a probe through the fistule it came in contact with a firm and resisting body, apparently occupying the superior fundus of the bladder, at least a part of it. This body, as I supposed, proved to be the cervix.

Operation.—Owing to the thinness of the border alluded to, I had great difficulty in obtaining a denuded surface sufficiently extensive to insure agglutination with the one of the opposite side. From the same cause, great trouble was experienced in the introduction of the sutures. It appeared almost impossible to prevent the needle from piercing the vesical mucous membrane. A secondary fistule, therefore, I feared from this circumstance. Three sutures were required. A few hours

after the patient was removed from the operating-table, menstruation came on, attended with violent bearing-down pains. Morphia was freely given, but this served only to lull the pain, not to control it. With the cessation of the menstrual flow, the pains passed off, having lasted about three days. The remainder of the patient's confinement was unattended with anything worthy of notice.

Ninth day. Removed the suture apparatus and found complete closure of the fistule. As I feared, a small opening by the side of one of the sutures was now found to exist. The favorable appearance of this, however, induced me to think that it would close up in a few days under the use of nitrate of silver, and longer confinement in bed, with catheter in the bladder. But in this I was mistaken. At the end of four or five weeks, finding little or no improvement, I determined to employ the suture, which I did in the usual way; and in due course of time had the satisfaction of seeing the cure of the case completed. The patient now found, to her delight, that she had control over her urine—something she had been a stranger to for fourteen years. She cannot, it is true, retain her urine as long as formerly, three or four hours being as long as she can go without passing it off; still the success of the operation is perfect, and the benefit conferred by it incalculable. The inability to retain the urine longer than this, is owing, I imagine, to a diminution of the cavity of the bladder. The shortening of the vaginal canal, and incarceration of the cervix uteri, at least justify this conclusion. At the time of this writing, the patient's condition is about as it was just after the operation, excepting her general health, which has greatly improved. She continues to menstruate; being, however, irregular, as is the case generally with females who have reached her period of life. At each return, the same pains occur as formerly. The commingling of the menstrual fluid with the urine, and its entire passage through the urethra, seems to give rise to no more inconvenience than before the closure of the fistule.

Remarks.— Whether the incarceration of the cervix uteri, in the cavity of the bladder, was a natural result of the injury which the parts sustained in parturition, or was caused by the operations which had been performed, I am not able to say. Nor am I prepared to affirm whether a part or any of it, had been destroyed. Therefore I cannot state with certainty as to what variety of my fifth class the case originally belonged. The opening I found to exist, I have said, was of the first variety, and as such, was treated in accordance with the plan heretofore laid down.

Case VII. *Vesico-vaginal Fistule of nearly One Year's Standing, complicating the Anterior Lip of the Cervix Uteri: Cure by the Button Suture.* Amanda, colored girl, of Shelby county, was admitted into my infir-

mary on the 22d of May, 1856, laboring under the above form of disease; æt. 19, stout, heavily built, and very healthy-looking.

The history of the case, as detailed to me by my friends, Drs. Wallace and Welch, who attended the patient in her accouchement, is in substance as follows: Patient was taken in labor with her first child on the 30th of September, 1855; pains came on regularly, and continued so until the succeeding day, when they ceased. In this condition, things continued pretty much the same for five days. Medical advice was now sought. An examination, per vaginam, showed that the head of the child was low down in the pelvis, and pressing firmly against the neck of the bladder, thus presenting an obstacle to the flow of urine, or the introduction of a catheter to relieve the organ, which was discovered to be very much distended. Relief, at this crisis, being loudly called for, and as there was no prospect of a change by the natural efforts of the patient, it was decided, at once, to employ instruments Craniotomy was accordingly performed, and delivery speedily accomplished. No further complaint was heard from the patient until a couple of weeks had elapsed, when attention was called to the fact of dribbling of the urine, and inability to pass it in the natural way. The existence of vesico-vaginal fistule was now discovered. In this condition patient remained until sent to me. Had not menstruated since her injury, but enjoyed pretty good health.

Examination.—Fistule of fifth class, first variety. (For an exact representation of its shape, size, situation, and relations, see Fig. 4.) It was an inch and a quarter in its transverse diameter.

Operation.—May 30th, I proceeded to perform the operation in presence of the two gentlemen previously named, who visited our city for the special purpose. (See description, with form of button, Fig. 13, under its appropriate head.) Six sutures were required.

A few hours after patient was put to bed, menstruation came on; otherwise everything went on well until the night of the third day, when a severe pain in the bladder occurred, which caused the catheter to be forced out, followed by a discharge of blood. The instrument was at once replaced, and half a grain of morphia administered. No further trouble with the case was had, excepting to cleanse the catheter, and syringe out the vagina twice a day.

Ninth day. Removed suture apparatus, and found union of the parts perfect. Patient wore the catheter a few days longer, and then got up and went about as well as ever.

Remarks.—This case I regard as a beautiful illustration of one of the extremes of the variety to which it properly belonged. The pain referred to as causing the catheter to be forced out of the bladder, I may state here, very often occurs at this stage of the treatment. The establishment of the catamenia immediately after the operation, as in this instance, is not unusual. I have known it to take place under similar

circumstances, even where it had been absent two and three years. I have several times observed this fact, and I think it is one of sufficient interest to deserve notice.

Case VIII. *Vesico-vaginal Fistule of Eighteen Months' Standing, complicating the Cervix Uteri with Closure of its Canal, and involving nearly the whole of the Bas-Fond and Trigone of the Bladder; Cure by the Button Suture.* Minerva, colored girl, of this city, was admitted into my infirmary on the 13th of June, 1856; æt. 24; tall and rather spare built; states that she has had three children at full term, the last having been born about eighteen months ago, at which time she became the subject of her present difficulty; is not certain how long she was in labor; thinks that it was two or three days. Child was of large size and dead, and had to be removed with instruments. Five or six days afterwards discovered dribbling of urine. Has never menstruated since; general health not been very good.

Examination.—Fistule of fifth class, second variety. (See Fig. 5 and its description. The drawing was made from this case.) No trace of the os uteri could be seen.

Operation.—July 12th, assisted by Dr. Wilson and my private pupil, Mr. J. S. Dillard, I proceeded to the operation. (See description of the different stages under its appropriate head. In addition, I may state, however, that in the paring process the end of each ureter was cut off and slit on the vaginal side of the septum to the extent of a quarter of an inch, the object of this being to throw the entrance of the urine into the bladder away from the approximated edges of the fistule.) The arrangement of the sutures, eight in number, and the distance the uterus had to be hauled down, are illustrated at Fig. 14. The button employed is illustrated by Fig. 15.

For two or three days after the operation, patient complained of considerable soreness across the lower part of the abdomen, caused doubtless by displacement of the uterus. This, however, passed off without any ill consequences.

Ninth day. Removed suture apparatus and found a perfect cure. After four or five days the catheter was dispensed with, and the patient allowed to get up. Entire control of the urine existed; could not, however, retain much at a time; had to pass it off frequently. Soon began to improve in this respect, and not long afterwards patient informed me that she could lie pretty much all night without having to get up to relieve the bladder. The general health now improved rapidly. After a few months, I undertook the re-establishment of the cervical canal. Now a more natural condition of the parts was found to exist; by the very great elasticity of the vaginal wall the uterus had been allowed to ascend almost to its normal position in the pelvis. In the situation of the uterine orifice was to be seen a very slight depres-

sion, indicating, as I thought, the entrance into the canal for which I was in search. To satisfy myself that such was the true state of things, I provided myself with a long and delicate bistoury. This I entered at the point of depression, and carried it about a quarter of an inch in the direction of the cervical canal. I then introduced a very small metalic bougie into the cut, and after some little perseverance succeeded in passing it on into the cavity of the uterus. In a short time I had the canal so far dilated that a No. 12 bougie could without any difficulty be introduced. After this I had no other trouble with the case, excepting to introduce the bougie occasionally to prevent reclosure of the orifice.

In a few weeks menstruation was re-established, and the patient's health then began to improve very rapidly. At the time of this writing, she says she is as well as she ever was. An examination of the parts now, without being apprised of their previous condition, one would, I think, be very unlikely to discover anything unusual in their appearance.

Remarks.—This case I regard as another fair example of the variety it represents, and in none could there be a better illustration given of the principle of the independent action of the sutures than is here shown.

The result, I need scarcely say, is truly interesting, as affording a striking instance of the practicability of closing large fistulous openings by my method, without resort to *Cystoplasty*, thought by Jobert and others to be the only alternative in such cases.

Case IX. *Vesico-Vaginal Fistule of Eighteen Months' Standing; Three Failures with the Clamp Suture; First Operation with the Button Suture successful.*

Ann, colored girl, of Lumpkin, Geo., was admitted on the 25th of October, 1856; æt. 22; below medium stature, and apparently in good health. She gives the following history of herself: States that she was confined with her first child in June, 1855; labor lasted about sixty hours; child was removed with instruments, was of large size, and dead; does not recollect whether urine was passed regularly during labor or not. First discovered dribbling five or six days after delivery.

About a year ago this patient, I understand, was placed under the charge of a surgeon, who peformed three operations with the clamp suture; all to no purpose, however, as the result shows.

Examination.—Fistule of fourth class, first variety. (See description and the accompanying cut, Fig. 2.) The diameter in this instance was about three-fourths of an inch. Only about an eighth of an inch of the urethra seemed to be gone. No inversion of the anterior edge. Posterior edge could not be brought down so as to close the opening, nor could the vaginal canal be expanded with the speculum to the usual

extent, in consequence of adhesion of the two walls of the latter upon the left side. The removal of this obstacle, therefore, was indispensable.

A few days after admission, I put the patient in position for the operation. The plan adopted consisted in making a deep and horizontal incision from the left extremity of the fistule. The result was satisfactory. The canal could now be expanded to its full size, and the posterior edge of the fistule brought in apposition with the one of the opposite side without any difficulty. Until the parts could heal, a relapse was effectually prevented by keeping the vagina constantly distended by means of an oil-silk bag of suitable size, and stuffed with bits of sponge. This tent required to be removed twice a day, and the parts syringed out with cold water.

Operation.—On the 16th of December, everything being in readiness for the closure of the fistule, I proceeded to perform the operation in presence of Drs. Hill and Jackson. Four sutures were required. Surface upon which the button had to stand was concave ; the latter had, therefore, to be adapted accordingly. (Fig. 11 is a view of such a button as was used.)

Removed suture apparatus ninth day, and found union of the parts perfect. Patient wore a catheter the usual length of time, and then got up. At first could not retain her urine ; it all passed off involuntarily through the urethra. Gave tinct. cantharides, ten drops three times a day. In a few days after commencing the medicine, there was a manifest improvement in the retentive power of the bladder, and in less than three weeks after getting up, patient was discharged entirely restored. She could now retain and pass her urine as well as she ever could.

Remarks.—The result in this case was as satisfactory as could have been desired ; indeed more so than I had a right to expect, considering the injury which the root of the urethra had sustained. The closure of the fistule itself was simple and easy enough. When I speak of the result as satisfactory, I refer more particularly to the fact that the patient was enabled to control her urine, which, I repeat, must be regarded as remarkable under the circumstances.

The total inefficiency of the clamp suture in such cases was here clearly shown. By this I do not intend to cast any reflection upon the skill of the gentleman who employed the method in question ; for I firmly believe no better result than this could have been obtained by any operator under similar circumstances.

CASE X. *Vesico-Vaginal Fistule of Thirteen Years' Standing ; Inversion of the Bladder ; Case thought to be Incurable ; attempted Occlusion of Vagina ; Failure ; Fistule finally closed at One Operation by the Button Suture.*

Julia, colored girl, of Lowndes county, first came under my notice in the spring of 1853. She was at that time under the charge of Dr. J. M. Sims, then of this city. No operative procedure was attempted by that gentleman. On many occasions he remarked to me that the only alternative was occlusion of the vagina, as directed by M. Vidal. This operation, however, he never performed.

Two years afterwards, the case was placed under my charge. Its history was as follows: Patient, æt. 37; above medium size; stout, well-formed, and healthy-looking. States that at the age of twenty-five she was confined with her third child, and since then has not been able to retain her urine, not even a few drops at a time. Labor lasted four days; does not recollect whether the urine passed regularly or not during the time; child was removed with instruments; was dead, and of large size. A few days after delivery, dribbling of urine took place.

First Examination.—Found, in addition to the usual external signs of fistule, a very large and fleshy-looking tumor protruding from the vulva. The surface of the tumor was studded with granulations, which were firm, extremely sensitive, and would readily bleed on being handled; upon its upper part were to be seen the mouths of the ureters, from which the urine trickled away externally as fast as secreted by the kidneys. There was no difficulty, therefore, in recognizing this unnatural protrusion to be the extruded bladder. Knowing now the extensive injury which the organ must have sustained to have resulted in this condition of things, I at once came to the conclusion of Dr. Sims, namely, that occlusion of the vagina was the only alternative which promised any benefit to the patient.

A few days after admission, assisted by Dr. Clanton, I accordingly proceeded to perform that operation. A complete failure, however, was the result. I now felt but little encouraged to renew my efforts, and in view of the slight benefit which was likely to accrue to the patient from another operation, even though successful, I determined to discharge the case, hoping that I would hear no more of it. My patient, however, after being away about eighteen months, returned, insisting that I should make another attempt to relieve her in some way. In the mean time, having fallen upon the plan of the button suture, I was now prepared to take a more favorable view of the case. She was, accordingly, readmitted in December last.

Second Examination.—Before the true nature of the fistule could now be properly understood, or the vagina be explored, the protruded parts had to be restored to their normal place, and there retained. This reduction I succeeded very well in effecting; but to prevent their extrusion again was the trouble. For the latter purpose, the plan I adopted, and an admirable one I think it is under such circumstances, was to fill the remains of the vesical cavity with pieces of sponge. In this way, a correct and satisfactory view of the fistule and surrounding

parts was, and can always be, had. The fistule was found to belong to the fourth class, third variety. (See Fig. 3, and description. The drawing was made from this case, the only one of the kind it has ever been my misfortune to meet with. The extent of inversion of the anterior border of the fistule is represented by the space between the dotted and curved lines.)

Operation.—On the 21st of December, assisted by Dr. Moore, I proceeded to operate, in accordance with the plan of treatment laid down in the former part of this paper.

The manner of paring the edges of the fistule and vaginal surface is intended to be shown by the circular lines delineated in the figure above referred to. The button which was employed is illustrated by Fig. 12. From this it will be seen that eight sutures were required.

Prior to commencing the operation, and for the reason before mentioned, I returned the protruded portion of the bladder, and kept it in place in the way already described. After the paring was over, and the sutures all introduced, the sponge was removed. The sutures now effectually prevented any protrusion until they could be adjusted, and then there was no likelihood that it would occur.

During the whole time of confinement the patient did well. On the ninth day, I removed the suture apparatus, and found union of the parts perfect throughout. At this result, I must confess, I was somewhat surprised. From the size of the fistule, and its peculiarities, I had my doubts about the entire success of the operation.

The patient wore a catheter five days longer, and was then allowed to get up. It was now found that dribbling of urine continued, though not to such an extent as formerly. Waiting a few days, and seeing no improvement in the retentive power of the bladder, I came to the conclusion that I was mistaken as to the entire closure of the fistule, and therefore instituted another examination. Again, however, I was satisfied that the operation had been entirely successful. The destruction of the root of the urethra, the inversion of the corresponding border of the fistule, and the peculiar manner in which the opening had been closed, sufficiently explained the incontinence under which she now suffered. I put her upon the use of tinct. cantharides, and after several weeks there was manifest improvement. She was soon able to retain her urine two or three hours in the recumbent posture, and to get up then and pass it off. In the erect posture it still could not be retained long without dribbling. In the latter respect, however, it was but a short time before there was some improvement. She could now walk about half an hour, or even longer sometimes, without incontinence, and continued gradually to improve from week to week. In conversing with her, a few days since, on the subject, she informed me that, in the morning after emptying the bladder, she could go three hours without any dribbling. This is about the extent of her improve-

ment, and is indeed far more than could have been reasonably expected in the outset, taking all the circumstances into account.

Remarks.—This case, I scarcely need say, is an extreme one. The result of the operation, *per se*, is remarkable. By it is proven what may sometimes be accomplished under circumstances considered otherwise the most hopeless. By it are also established the advantages of the method adopted over any other which has heretofore been proposed in similar cases.

CASE XI.—*Vesico-Vaginal Fistule and Rent of the Urethra of Seven Years' Standing: thought to be incurable; attempted Occlusion of Vagina; Operation nearly successful; Vagina restored to its Normal State: Fistule found to be of Large Size, involving the Anterior Lip of the Cervix Uteri; both Fistule and Rent cured by the Button Suture.*

This patient was very kindly sent to me by my friend, Dr. J. C. Cummings, then of New Orleans, but now of Monroe, Louisiana. From this gentleman I learned that the case had been under treatment in New Orleans for nearly a year, and that after several unsuccessful attempts to close the fistulous opening, recourse was had to occlusion of the vagina.

History.—Nancy, colored girl, was admitted on the 10th of January last; æt. 27; of medium stature, stout, heavily built, and healthy-looking; states that she was confined with her third child seven years ago (1850), at which time she lost the power of controlling her water; was in labor five days, delivered by a physician; no instruments were used; five or six days afterwards first noticed the dribbling of urine. Since the injury she has menstruated, though not regularly. Health generally pretty good.

Examination.—Found the vagina almost completely occluded. Just beneath the meatus urinarius was a small opening into the vaginal canal. Not being able to get a view of the parts beyond through this small opening, I determined at once to restore the canal to its natural condition by severing the existing adhesions. This was quickly done, and gave rise to but little pain.

The fistule thus brought into sight was found to belong to the fifth class, first variety. In appearance it differed little, if at all, from Case VII. The rent of the urethra was about three-quarters of an inch in length. (See remarks upon this form of urethral injuries under the division of Class 1st.)

Operation.—Feb. 15th, the patient being in a favorable condition, I proceeded to operate, assisted by Dr. Moore. The plan was precisely the same as pointed out for Case VII. Patient did well.

On the ninth day, I removed the suture apparatus, and found perfect union, except at a small point just about the middle of the cicatrix.

The cause of this slight failure was from the edge or edges of the fistule not being properly pared. The performance of this part of the operation had been very unsatisfactory, owing to the circumstance that the sky became overcast just after I commenced, and I was compelled to finish the operation, I may say, almost in the dark. I remarked at the time I feared there would be a partial failure from this cause.

Another sitting was therefore required. This was had on the 8th of March, and in due course of time a complete cure was obtained. The patient, after getting up, found that she could retain and pass her urine as well as she ever did, excepting the inconvenience resulting from the urethral injury. The rent of the urethra next claimed attention, and, I may remark here, that I had operated several times before on a case of urethral injury similar to this and had failed, from inattention to the proper support of the catheter. I had employed the button suture without any regard to this important point, hence my failures. These, however, were not without profit; I was now led to see the extent of the mischief done by the weight of the catheter, and took steps to avoid it in the present operation, which proved perfectly successful. The importance of my contrivance for the purpose above indicated is dwelt upon at sufficient length on a former page. (For a view of the instrument, which is nothing more than a modification of the buttom suture, see Fig. 9, and accompanying remarks.)

Operation.—May 19th, in the presence of Dr. J. C. Bachelor, of New Orleans, I proceeded to operate upon this case in accordance with the rules elsewhere laid down.

On the ninth day, I removed the suture apparatus, and found the urethral canal re-established, but lacking its usual length by about one-sixteenth of an inch. This slight shortening of the canal resulted, I am inclined to think, from the corners of the rent having been sacrificed in the operation which had been performed for obliteration of the vagina.

Remarks.—This case I regard as interesting, on account of the coexistence of fistule and rent of the urethra, a circumstance which, though not very unfrequent, is one which may always be viewed as complicating the treatment. The case is also interesting on account of the prompt and complete success of my operation, after several failures of other surgeons to close the fistule, and a resort to occlusion of the vagina. How many methods had previously been tried, I cannot state positively. Those of Vidal, Sims, and myself, all, I understand, had a showing.

Case XII. *Urethro-Vaginal Fistle of Eight Years' Standing; Cure by the Button Suture.*

Mrs. S., of Arkansas, five years a widow, came to our city on the

16th of March last, for the purpose of consulting me in regard to her condition; æt 29; of medium stature, well formed, and apparently in pretty good health. States that she was confined with her first child on the 17th of June, 1849, at which time she sustained an injury, supposed to be of the bladder, and ever since then has had incontinence of urine. Labor lasted about sixty hours; for the first thirty-six the pains were heavy, then they grew lighter, and finally ceased. This repose lasted only a few hours, the pains again came on with redoubled severity, and continued until the child was born, which was dead, and of large size. Says that the physician in attendance used instruments to aid in delivery. During labor the bladder was kept empty by the occasional introduction of a catheter. In less than twenty-four hours after delivery, discovered dribbling of urine. Since the injury she has enjoyed very good health. Menstruates regularly, and has had two living children and one miscarriage. These labors were all easy, and unattended with further difficulty as regards the retentive power of the bladder,

Examination.—Fistule of first class, third variety. (The drawing at Fig. 1 was taken from this case. See accompanying remarks.) The injury was found to be about three-fourths of an inch in length, and, as will be seen in the cut, was very near the neck of the bladder. Owing to this latter circumstance, the patient had no more control over her urine than had the opening been situated in the vesico-vaginal septum.

Operation.—The operation was performed on the 20th of March. The paring process in this case included both ends of the urethra. Four sutures were required, two upon either side of the urethra. Previous to their adjustment, a catheter was introduced into the canal to insure an accurate coaptation of its two ends. After the edges of the opening were brought together, there was found to exist along the course of the urethra a ridge, sloping off on either side, thus indicating a button of rather peculiar shape. Fig. 10 is a view of such a one as was applied.

For two or three days after the operation, the patient had a few darting pains in the region of the bladder, but they passed off without doing any mischief.

On the eighth day I removed the suture apparatus, and found union perfect. In a few days the patient got up. At first she had slight incontinence of urine, which I supposed to depend upon weakness of the parts, but in the course of eight or ten days this difficulty ceased entirely. She could now retain her urine as well as ever, and about a month after reaching our city she left it for her far-off home, perfectly delighted with the result.

CASE XIII.—*Vesico-Vaginal Fistule complicated with a Total Loss of the Vaginal Portion of the Cervix Uteri and Closure of the Cervical Canal, of Fourteen Years' Standing; Cure by the Button Suture.*

Jane, colored girl, of this county, was admitted into my infirmary on the 23d of April last; æt. 29; of medium stature, and rather delicately formed. States that she had her first child at the age of *thirteen*. Labor in this instance was unattended with difficulty. Eighteen months afterwards gave birth to a second child, at which time she was injured, and lost the power of retaining her urine. Labor lasted about forty-eight hours; child was removed with instruments (forceps, I suppose as the child came alive.) Five or six days after delivery, first discovered dribbling of urine. Has never menstruated since; general health not good. Every month has the usual premonitory symptoms of the menstrual flow, and is relieved only by bleeding at the nose.

Examination.—Fistule of fifth class, fourth variety. (See Fig. 8, and accompanying remarks.)

Operation.— This was performed on the 8th of May. For an account of it, see Fig. 17, and the appended remarks. The drawing there exhibited was made from the button employed in the case. Six sutures, it will be seen, were required.

For several days after the operation, patient had considerable pain across the lower part of the abdomen and some fever. The latter was of a remittent type, and yielded readily to the use of quinine. Otherwise she did well.

On the ninth day I removed the suture apparatus, and found perfect union. Patient wore a catheter the usual length of time, and then got up with power to retain her urine. After a few days, she said that she felt as well as she ever did, so far as retaining her urine was concerned. I have done nothing yet towards re-establishing the cervical canal, but shall, so soon as the patient's health recruits a little more.

Remarks.—This case, it must be admitted, is another extreme one, and the ease and facility with which the cure was accomplished, leave no doubt in my mind as to the superiority of the method adopted over any other which could have been selected.

CASE XIV.—*Two Vesico-Vaginal Fistules and Rent of the Urethra, of Twelve Years' Standing; Several Operations previously performed with only partial relief; Cure by the Button Suture at two operations; Reproduction of the Rent two weeks afterwards from wearing a Catheter.*

Mrs. R., formerly of this State, but now of Louisiana, visited Montgomery, in April last, for the purpose of consulting me in reference to her case; æt. 32; tall, and rather spare built; states that she was confined with her first child, February, 1845, at which time she became the subject of her present affliction. Says that labor lasted about seventy-six hours; pains at first were slight; during the twenty-four

hours immediately preceding delivery took ergot; child was still-born, and of large size. No instruments were employed. There was retention of urine before and after the birth of the child. Catheter was used as often as occasion required. Five or six days after delivery first noticed dribbling of urine, which was ascertained by the attending physician to result from a slough in the vesico-vaginal septum. In July following, patient having sufficiently regained her health, set out in company wither husband, to visit Philadelphia, whither they had been advised to go, in order to secure the best medical advice of the country.

Arriving in that city, she was placed under the charge of a well known surgeon. The actual cautery was his plan of treatment. This course was for some time persisted in with only partial if any relief. Being discouraged at this result, advice was asked of another surgeon, no less distinguished and admired by the profession on account of his teachings and his skill as an operator. This latter gentleman, I understand, employed a form of suture which, at that time and since, has attracted no little attention on the grounds of its plausibility. Three applications of this suture were made, the last of which, if I am correctly informed, was supposed to be attended with entire success; but, as the result shows, such was not the case. For this mistake, however, no blame can be attached to the operator; for almost any one would have been deceived under the circumstances.

Patient states that she derived very great benefit from these operations, being able now to retain pretty much all her urine while in the recumbent posture. Although discharged without being permanently cured by the sugeon referred to, she possessed undiminished confidence in his integrity and skill, and deep gratitude for the very great relief afforded her.

During the time she was undergoing the above treatment, she was confined with her second child. The labor was easy and unattended with further difficulty. Since then has passed through three others with like favorable results. Her present condition is as follows: Generally she can, by lying quiet, retain the principal part of her urine all night but even to turn in bed, or to attempt to get up, causes it, at once, to pass off. When walking about she has not the slightest control over it. General health pretty good. Menstruation regular, &c.

Examination.—Discovered two fistules of the second class. One was situated upon the right, and the other, the left, equidistant from a point corresponding to the beginning of the urethra, and a little above a horizontal line drawn through the same, being about three-quarters of an inch apart. Both were circular in shape, but the one on the right considerably larger than the left. The former is the only one I saw at my first examination, and is the only one I supposed to exist at my first operation.

The rent of the urethra was about seven-eighths of an inch in length. (See remarks upon urethral injuries in the former part of this paper.) The fistulous opening discovered, although large enough to allow a considerable quantity of urine to pass off, yet was not sufficiently capacious to account for the rapidity with which the latter escaped when the patient assumed the erect posture. Another cause, therefore, I conceived must exist, and to none could the above result be more reasonably assigned than the shortening of the urethra, occasioned by the rent alluded to. Reparation, then, of this canal, I regarded of the utmost importance, with a view to a successful issue in the case.

The course I determined now to pursue was to close both fistule and rent at one operation, and in that way curtail the time of confinement. I had once before performed the operation under similar circumstances. (Case not included in these reports.) The rent in that instance closed, but the fistule did not. The failure of the latter to close, I was at that time disposed to think, resulted from some oversight or neglect in the operation. Hence my desire to give the procedure a fair trial.

Operation.—April 22d. Performed the operation as above indicated. In paring the edges of the fistule, I found them very much hardened. Only two sutures and a plain button were required. For the rent, four sutures and such a button as Fig. 9 illustrates. (See Fig. 9, and accompanying remarks.)

On the third day after the operation, the catheter became choked, and had to be removed and cleansed. I had some little difficulty in replacing it, but no mischief resulted. After this the patient got on pretty well. A small wire occasionally introduced served to keep the catheter open.

On the ninth day I removed both buttons and sutures. The rent I found entirely closed, the fistule only partially. A second failure now, under similar circumstances, satisfied me that this double operation would not do. My reasons for this belief have been already stated at length. (See management of rents.) Patient remained in bed five or six days longer, and then got up. After a few days more, she found that there was considerable improvement in her condition. She could now sit up and walk about for some length of time with but little leakage, consisting of what I supposed passed through the small fistulous opening remaining. A short time after this, I instituted another examination, and found the fistule which I had operated upon to all appearances closed. To be certain now that I was not mistaken, I filled the bladder with water,—the only sure test in cases of doubt. To my regret, however, I found that the fistule was not closed. Not only this, but by the same test I was now led to the discovery of the other fistule alluded to in the outset of this report.

By close inspection, I could now see a line of cicatrization extend-

ing from one fistule to the other, running just across the mouth of the urethra, and doubtless the result of the partially successful operation previously mentioned. There is no doubt, in my mind now, that the original fistule extended across the vagina in the above situation, and that by the operation or operations, performed in Philadelphia, it was closed in its centre, thus leaving an opening at each extremity.

Here were two fistules now instead of one to be closed. One operation I determined to make suffice for both, and accordingly performed it on the 21st of May. Two sutures were required to each fistule,—all introduced antero-posteriorly. The shape of the button employed is illustrated by Fig. 10; but, in point of size, it was a little longer than the representation, and the perforations, instead of being uniformly distributed, were made to correspond to the sutures in each fistule. Used the ordinary metalic catheter. Patient complained of considerable soreness from it during her confiement in bed.

On the ninth day, as usual, I removed the suture apparatus, and found perfect closure of both fistules, with a reproduction of the rent of the urethra. The latter was caused by the weight of the catheter, the newly-formed cicatrix here not having become strong enough to bear it, a circumstance to which I have heretofore alluded in connection with the general management of rents of the urethra.

The patient upon now getting up found that she had lost, in a great measure, the control which she had over her urine after the first operation. Showing very conclusively how much the incontinence depended upon this urethral injury. An operation for this accident, therefore, became necessary, and was accordingly performed on the 8th of June following, the plan pursued being the same as in the first instance. On the ninth day I removed the suture apparatus and found union throughout, excepting a small point at the upper end, the most unfortunate place at which a failure could have occurred.

Patient again after getting up found that she could not retain her urine as she had done, the opening being large enough for the greater portion of the fluid to dribble off.

Another little operation will have to be performed, which I intend so soon as my patient's health recruits a little, for which purpose she is now absent in the country.

Remarks.—This case, from beginning to last, is certainly one of no ordinary interest. The existence of a large fistulous opening in the first place; its central closure by an operation; the two resulting fistules; the benefit conferred by said operation; the question whether the rent of the urethra was, in its production, cotemporaneous or not with the establishment of the original fistule; if so, the bearing which it had upon the incontinence of urine in relation to cause and effect; the necessity of closing this equally as important as that of the fistule, are all points deserving notice.

As to the rent, I cannot say positively whether it was produced at the same time with the fistule or not. The patient herself thinks it was. She bases her belief upon the fact, that all her subsequent labors have been easy and unattended with difficulty, and that she has never experienced any change in the power to retain her urine, since undergoing the first course of treatment.

It is true, this case is not permanetly cured, yet I have no doubt of ultimate success. And although the rent of the urethra was produced at my second operation, and another had to be performed, which proved to be a partial failure, still the claim to having closed both the rent and the two fistulous openings, at two operations, cannot be controverted, and is an achievement of which any operator might well be proud.*

Case XV. *Three Vesico-Vaginal Fistules; One complicated with partial Loss of the Cervix Uteri, and requiring two Operations, a small Opening remaining after the second Operation, and the two other Fistules, all successfully closed at once under the same Button, followed by a secodary Fistule.*

Jane, colored girl, of West Point, Georgia, was admitted on the 11th of May last, aged about 25, and quite fleshy; has had four children, the last being born in April, 1855, at which time she sustained her present injuries; says that labor lasted four days; child was still-born and of large size. No instruments were used in effecting delivery; during labor, passed urine regularly; five days after its completion discovered dribbling, which has continued ever since; general health good; menstruation regular, &c.

Examination.—Three fistules were discovered (although not at the first sitting), one belonging to the fifth class, fourth variety, and the other two to the third class. (Of the first, Fig. 7 is a representation. The uterine orifice A, owing to the anteversion of the cervix, is thrown into the cavity of the bladder.) The other two fistules were quite small, and situated opposite the uterine orifice, upon the left side, and about 3-16ths of an inch from the corresponding angle of the large fistule. They were close together, one being just above the other.

*The issue so confidently predicted, in the above remarks, the author would state has not been realized, nor has he much hope of it now, judging from present indications. So far as closure of rent and fistules in the case, is concerned, the result attained is all that could be wished, but the former difficulty continues; namely, incontinence of urine. The principal part of the fluid now passes off involuntarily through the newly-formed urethra—thus showing a deficiency in the retentive power of the bladder. Whether this state of things will change for the better, time can only prove.

Having, on former occasions, obtained successful results in cases by far more unfavorable to the eye than this could ever have been, the author feels no little disappointment in the present instance.

The explanation of the difficulty, he believes, is to be found in the indurated or unnatural condition of the tissues at the neck of the bladder, occasioned doubtless by the protracted use of the actual cautery—the first plan of treatment adopted.

Nov. 20th.

Owing to their diminutive size, they were not at first discovered, and consequently were not, in the outset, taken into account in planning the course of treatment thought to be best suited to the case.

First Operation.—From the division of the fistule indicated in the figure alluded to, it will be evident that two operations were required. The first, for closure of the longitudinal portion, I performed May 5th, in presence of Drs. Semple, Fowler, and Foster. Four sutures only were used.

On the ninth day I removed the suture apparatus, and found union of the parts perfect.

Second Operation, June 18th.—Having now allowed my patient sufficient time to regain her strength, I proceeded, in the presence of Dr. Weatherly, to perform the second operation indicated, and had no little trouble in the completion of its different stages. In the first place, the situation of the cervix in the cavity of the bladder, and the smallness of the opening, were two obstacles which rendered it quite impossible to denude a surface sufficiently extensive, anterior to the uterine orifice, to insure agglutination with the edge of the opposite side, an attainment absolutely demanded, in order to get the power of bringing the os uteri into the vagina, when the fistule was closed. Not only so, but as things stood, introduction of the sutures in front of the denuded surface alluded to, would have been entirely impracticable, and the height of folly even to have attempted it. I had, therefore, to enlarge the fistule, at each extremity, to the extent of nearly half an inch. This being done, I had but little more trouble in completing the operation in accordance with the plan of treatment already laid down. Six sutures were required. These, upon being adjusted, brought the denuded surface in perfect apposition, and forced the os uteri to the position I intended it should occupy.

Instead now of having a plane surface for the button to rest upon, as would have naturally beeen expected under the circumstances, a concave one presented itself. A button, therefore, bent upon its convexity was called for, being different from the one suggested in the general plan of treatment for this variety of case. (Fig. 12 illustrates the shape of such a one as was used.)

Nothing peculiar was observed in the after-treatment.

On the ninth day I removed the suture apparatus, and found union perfect, with the uterine orifice still in its normal position.

The patient, after wearing the catheter four or five days longer, got up. Found now that there was still some leakage. After waiting several days, and learning that there was still no improvement in the retentive power of the bladder, I was induced to make an examination, to see if I had not been mistaken in supposing the fistule to be entirely closed. The cicatrix, however, I found as complete as could be. The leakage was now believed to arise from another cause, and in

view of that I extended my inquiry a little further in search of it. Now it was that the existence of the two small fistules, described upon the left side of the large one, were discovered, which at once accounted for the difficulty. A few days after, while examining these small openings with a view to closing both under one button, I discovered just beneath them, in the line of cicatrization formed by my second operation, what appeared to be a vesicle. This I touched lightly with nit. silver, hoping that nothing of serious import would accrue from it. An examination, however, a few days later, showed that a small fistule had formed at that point, and that urine was escaping through it. With this three fistules now existed; all of them small, and what was still more favorable, upon a line with one another, ranging obliquely upwards and to the left. The distance between the lower and middle ones was about three-fourths of an inch, and between the latter and upper about one-fourth of an inch. They could not, I conceived, have been placed in a more favorable relation to each other to justify the attempt to close all three of them at once under the same button. Having on a previous occasion succeeded in closing two openings in a similar way, I was the more readily induced to hazard an effort in this instance.

Third Operation.—July 28th, assisted by my partner, Dr. J. B. Gaston, I proceeded to perform the operation above intimated. The edges of all three of the openings were pared separately. The lower one required two sutures, the second one, and the third two. All being arranged, the surface was found to indicate a button not only bent upon its convexity but slightly twisted, thus giving the edge a slightly sigmoidal appearance. This contrivance I found admirably suited to the condition of the parts.

After-treatment unattended with difficulty.

On the ninth day I removed the suture apparatus, and was pleased to find complete closure of all the openings. From the lower suture, however, had resulted a secondary fistule. Being very small, I touched it with nit. silver, hoping that it would close up in a few days, which it did.

Patient now had entire control over her urine. About a week afterwards, while examining the condition of the parts, I discovered a point quite red, just in the situation of the secondary fistule, which was supposed to be closed. This I touched slightly with caustic. Very soon leakage was found to have taken place again, and an examination disclosed the fact of the existence of a small opening at that point.

Several weeks have now elapsed, and the dribbling continues. Another operation, I am satisfied, will be required for its closure. So soon as my patient regains her health—being quite feeble at this time

—I shall perform it, and thus, I hope, complete the cure of the case.*

Remarks.—This case, I need scarcely say, was much complicated, and its management tedious. The result, thus far, has indeed been more satisfactory than I had a right to expect under the circumstances. The closure of the large fistule at two operations was a remarkable result. The relapse which occurred a week or ten days afterwards was unavoidable. The closure then, at one operation, of the resulting opening, and the two others which were discovered about this time, is unequalled in the whole course of my practice. Here, then, was accomplished by three operations what under ordinary circumstances would have required five, supposing the latter to have been all successful.

The secondary fistule, which is yet unclosed, was an accident, which, in spite of every precaution, is sometimes liable to occur. This, of course, can have no bearing upon the result of the other operations.

The change of the os uteri from the cavity of the bladder to its normal position in the vagina, is a feature in this case which greatly adds to its general interest, and may well claim attention on account of the novelty of the procedure adopted.

Case XVI. *Vesico-Vaginal Fistule complicated with Narrowing of the Vaginal Canal, of Six Months' Standing; Cure by the Button Suture.*

Mrs. L., of Crawford Co., Georgia, visited Montgomery on the 27th of last April, for the purpose of consulting me in relation to her case ; æt. eighteen, of small stature, and delicately formed. Her general health is very much impaired, and she is exceedingly nervous. States that she was confined with her first child Nov. 7th, 1856. Pains for the first twenty-four hours were slight, but these became very hard, and thus continued for about twenty hours, accompanied towards the last by puerperal convulsions. No instruments were used to effect delivery. Child was still-born, and of large size. Does not know whether urine was passed regularly during labor. Her husband says that no catheter was used by the attending physician. After delivery, consciousness is said not to have returned for three days. Soon after this, first noticed dribbling of urine, which has continued unabated to the present time. Did not get out of bed for two months after confinement. Menstruation then came on, and has continued regular ever since.

Examination.—Fistule of second class, oval in shape, and transverse in its longest diameter, measuring about three-fourths of an inch. On each side of it, the anterior and posterior walls of the vagina firmly adhered together, thus causing a constriction at this point, and preventing a free exploration of the organ. This obstacle, therefore, had to be overcome before any other procedure could be thought of. The

* The operation above alluded to has since been performed and the patient, thereby, entirely restored.

plan adopted for the purpose was the same as the one pointed out for Case IX, the only difference being, that in this instance lateral sections of the constricted portion had to be made from both extremities of the fistule.

Operation.—May 20th, the parts being in a favorable condition, I proceeded to perform the operation for closure of the fistule. The edges were pared, and the sutures, four in number, introduced in the usual way. Instead, however, of using a plain button, such as is ordinarily required in this class of cases, I found that one convex upon its under surface was indicated, such as illustrated at Fig. 11. The reason of this was the thickened and indurated condition of the parts at the extremities of the fistule. Patient went through the after-treatment without any difficulty.

Ninth day. Removed suture apparatus, and found the parts as nicely healed as could be desired. Patient wore a catheter four days longer, and then got up with entire control over her urine. She left the city about ten days afterwards, feeling, she said, as well as she ever did.

Case XVII. *Vesico-Vaginal Fistule complicated with Narrowing of the Vaginal Canal, of Five Years' Standing; Cure by the Button Suture.*

Rachel, colored girl, of Lowndes County, was admitted into my infirmary on the 4th of May last; aged about 22, of small size, and general health very much impaired. She gives the following account of herself: When very young had her first child; the labor was unattended with difficulty. Five years ago had her second child, at which time she became the subject of her present affliction. In this instance, labor lasted three days; the pains were severe the whole time; child was removed with instruments, dead; thinks that the urine passed off regularly during labor. A couple of days after delivery first noticed dribbling of urine.

Examination.—Fistule of third class; oval in shape; its longest diameter transverse, and measuring something over one inch in length. The whole vaginal canal was very much contracted at this point; indeed, so much so, that it was with difficulty the cervix uteri could be seen. This obstacle was overcome in the same manner as pointed out in Cases IX and XVI.

Operation.—July 7th. The parts being considered in a favorable condition for closure of the fistule, I proceeded to perform the required operation in presence of Drs. Semple and James. When the sutures were adjusted, the surface upon which the button was to stand was found to be concave, produced by the same cause that existed in the preceding case. A similar button, therefore, to the one used in this case, was here called for (see Fig. 11); the only difference being that, in this instance, it was required to be a little longer, and have another perforation for an additional suture.

Ninth day. Removed suture apparatus, and found a perfect cure. After eight or ten days, patient was discharged.

Case XVIII. *Vesico-Vaginal Fistule of Ten Years' Standing; Cure by the Button Suture.*

Ann, colored girl, of this county, was admitted on the 13th of July last; aged about 28; a little above medium stature, stout, and rather heavily built. States that she was confined with her first child in her eighteenth year. Labor lasted about six days; had no trouble in passing her urine during the time; child was still-born, and of large size. No instruments were employed to effect delivery. Four or five days after delivery first noticed the dribbling of urine. Says that this continued for a month, and then ceased entirely. With her next child she miscarried at seven months. In this instance had labor-pains two days. Very soon after delivery noticed dribbling of urine again, which has continued uninterruptedly to the present time. Had her third child four years ago; by this, no change in her condition was produced. Says that her general health has usually been good; menstruation pretty regular, &c. Her appearance now indicates an average state of health.

Examination.—Fistule of fifth class, first variety, quite small, and complicating the anterior lip of the cervix uteri near its centre.

Operation.—This was performen on the 18th of July, in the presence of Drs. Weatherly and Gaston. (See plan pointed out under the head of treatment for the above variety of cases.) Only three sutures were required. There was nothing deserving notice in the after-treatment.

Ninth day. Removed suture apparatus, and found a complete cure the result. A couple of weeks afterwards patient went home entirely restored.

Remarks.—This case I regard as interesting as an instance in which the fistule healed spontaneously, and was reproduced by a subsequent labor. Such was the course of things, if the patient's statement can be credited. The circumstance is certainly very remarkable, and therefore deserves a passing notice.

Case XIX. *Vesico-Vaginal Fistule of Nine Months' Standing: Cure by the Button Suture.*

Jane, colored girl, of Columbus, Mississippi, was admitted into my infirmary, July 31st. Aged about 28, of medium stature, stout and heavily built. States that when in her nineteenth year she gave birth to her first child. Since then has had five others, all at full term. Labor unattended with trouble in all, excepting the last, which occurred in December, 1856, at which time she became the subject of her present difficulty. Says that, in this instance, labor lasted eight days. The child, though dead and of large size, was born in the natural way.

Recollects passing her urine regularly until just before the completion of labor. Two days after delivery first noticed its dribbling. Did not get out of bed for four months. After this, general health began to improve, and very soon menstruation came on.

Examination.—Fistule of fourth class, first variety. In a letter to me from Dr. J. W. Hopkins, also of Columbus, it is thus accurately described: "The fistule is of large size, sufficient to admit the ends of two fingers, and occupies most of the space described as the vesical triangle, particularly including the apex, or opening of the urethra, extending rather more to the right than left side. Here (upon the right) the loss of substance by sloughing was so great that the pubic arch is barely covered, affording little chance of paring the tissues in order to secure a union of the edges of the fistule. A catheter passed through the urethra comes readily into view as it emerges at the inner end, so completely is the trigonus vesicalis destroyed.

"The vagina seems much contracted, as also does the bladder. There is as yet no excoriation of the parts, either external or internal. The edges of the fistule are indurated, and, as I found upon trial, difficult to cut." He further adds: "I have attempted an operation, although I did not have much hope of success. The result realized my apprehension."

Fig. 2 is a fair illustration of this variety of cases, such as is generally met with; but there was, in this instance, a marked deviation, as appears from the above description. The fistule, instead of being transverse in reference to its longest diameter, and directly across the beginning of the urethra, presented its long axis oblique, its left extremity resting, so to speak, upon the root of the urethra. It measured about an inch in length. But little of the septum, to the left of the mesial line, was injured. Such a peculiarity I had never before met with. Across the upper end of the opening, I may also add, there was considerable constriction of the vaginal canal. This I had to overcome by deep incisions and the use of tents, before closure of the fistule could be thought of.

Operation.– Sept. 7th. Everything being in readiness, I proceeded to perform the necessary operation in presence of Drs. McLester and Gaston. Five sutures were required. The button, after being bent upon its convexity, as shown at Fig. 11, was found not to fit the parts until it was twisted in a way similar to that described in the construction of the button employed in my third operation for Case XV. After-treatment unattended with any special interest.

Ninth day. Removed suture apparatus, and found union perfect throughout. Patient wore a catheter the usual length of time, and then got up.

At the time of this writing,—ten days since the result was known,—my patient is going about quite merry, being now able to retain her

urine three or four hours, without inconvenience. In a few days more she will have as good control over it as she ever had.

Remarks.—The history of this case fully explains its importance, as well as the difficulties I had to encounter in the operative procedure. The result, therefore, needs no comments. It speaks for itself.

Resume.—Such, then, is the character of the cases of urethro-vaginal and vesico-vaginal fistules that have come under my care, and such the results of my practice. It remains now for me to take a glance at some facts relating to the cases as a whole.

By reference to their histories, it will be seen that six of the accidents took place under the age of 20 ; seven between 20 and 25 ; while only two occurred at a later period,—ages 28 and 33 respectively. Six took place at first births ; two at second ; four at third ; one at fourth ; one at sixth ; and one at ninth. In nine of the cases instruments were employed to aid in delivery ; in six no artificial means was resorted to. The shortest duration of labor in any one of the cases was thirty-six hours, and the longest eight days, the average being about four days. In one case, dribbling of urine was observed in twenty-four hours after the completion of labor. The average length of time, however, at which this usually takes place, is, so far as I have been able to determine, about four days. Judging from the nature of the fistulous openings in the cases where instruments had been used, and where they had not, I am forced to the conclusion that nearly, if not all of them, were the result of sloughing.

The fifteen cases, embracing, as we have seen, twenty fistules, required twenty-two operations. Case V, two ; Case XI, two ; Case XIV, three ; Case XV, four ; all the others, one each.

Twenty-four operations have been performed, and two are yet required. One of the extra operations was performed for an accident which occurred in Case V, and the other was required from a partial failure of a preceding operation in Case XI.

One of the operations yet to be performed is in Case XV, and is for a secondary fistule,—in this instance, an unavoida-

ble accident. The other is demanded, in Case XIV, on account of the partial failure of the third operation.

Only two of my operations, therefore, out of the twenty-four, can properly be regarded as failures, and these only partially so.

ERRATA.

In the caption on 3d page, read *Vesico* for Fesico.
On 4th page, 4th line from top read *admits* for admids.
" 21st " 12th " " bottom, read *coaptation* for coaption.
" 24th " 11th " " top, " *areolar* " areola.
" 25th " 9th " " bottom, " *satisfied* " satisfiied.
" 25th " 5th " " bottom, " *adopted* " adopeted.
" 30th " bottom line, read *fistulous* for fiistulous.
" 45th " 3d " " bottom, " *Fistule* " Fistle.
" 48th " 8th " " top, " *with her* " wither.

URETHRO-VAGINAL

AND

Vesico-Vaginal Fistules:

REMARKS UPON

THEIR PECULIARITIES AND COMPLICATIONS: THEIR CLASSIFICATION AND TREATMENT: MODIFICATIONS OF THE BUTTON SUTURE: REPORT OF CASES SUCCESSFULLY TREATED.

BY N. BOZEMAN, M. D.,
OF MONTGOMERY, ALA.

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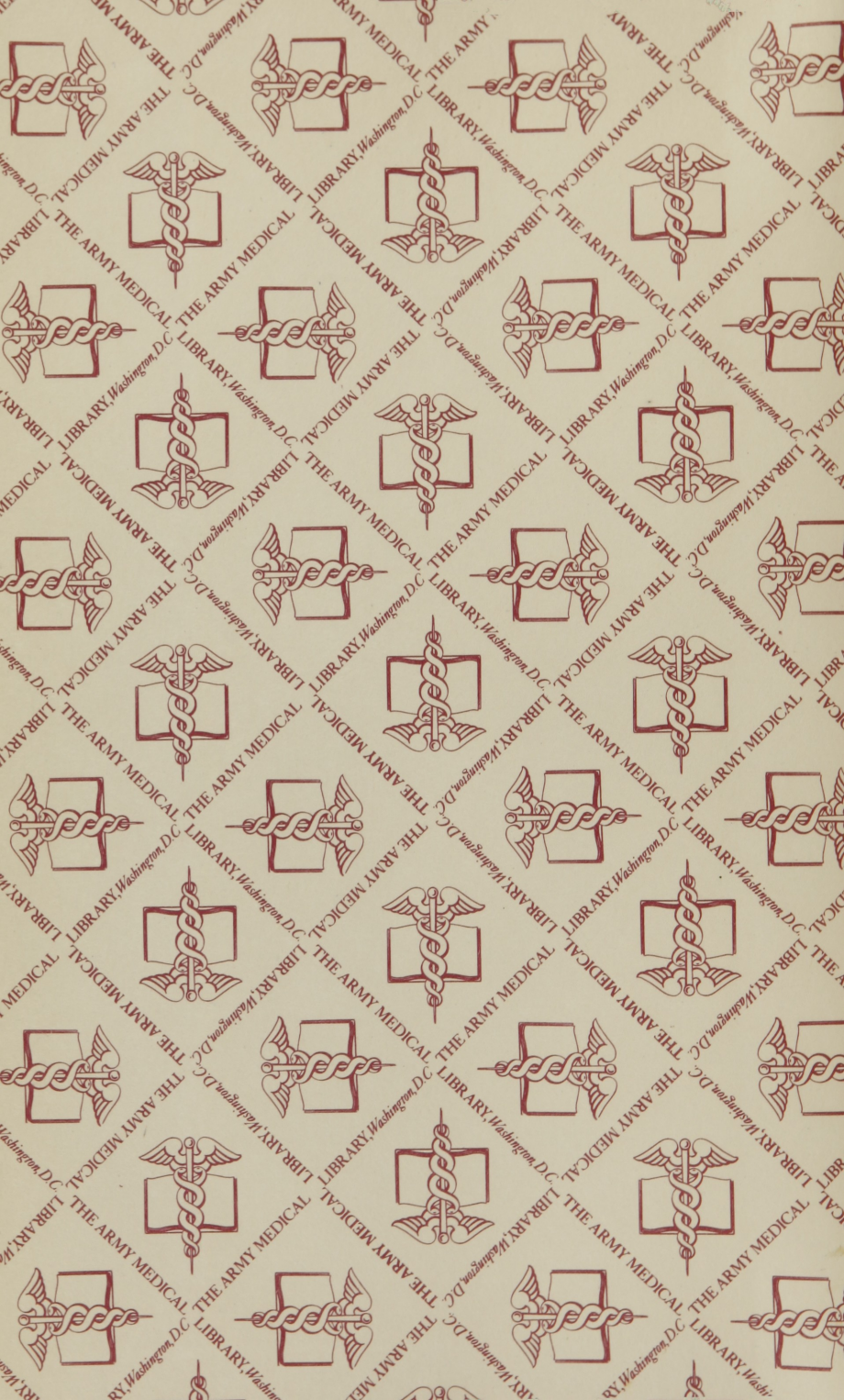
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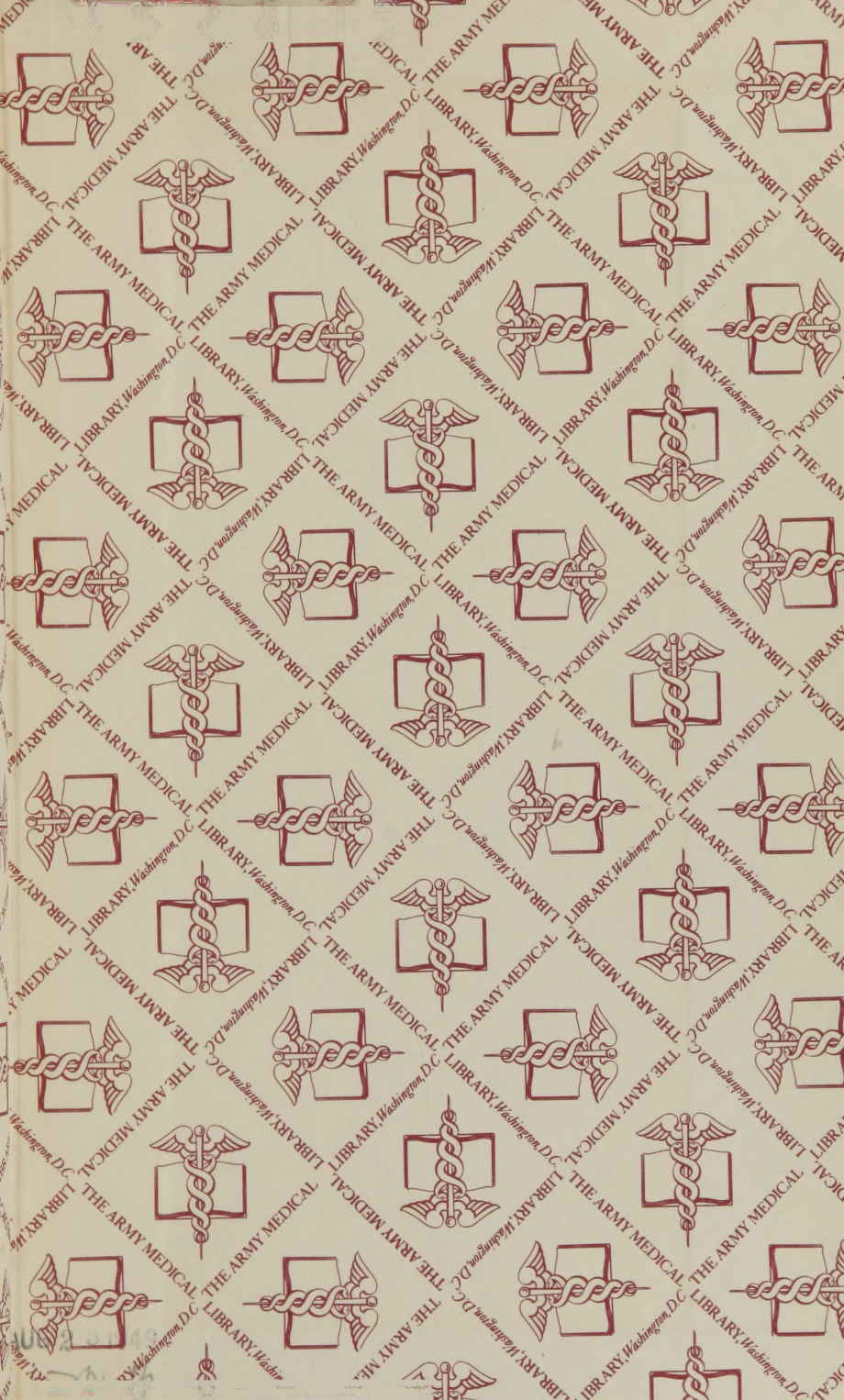
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